EN

PLANMECA

Compact i

Classic

user's manual

10030530_2

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The manufacturer, assembler and importer are responsible for the safety, reliability and performance of the unit only if:

- installation, calibration, modification and repairs are carried out by qualified authorized personnel
- electrical installations are carried out according to the appropriate requirements such as IEC 60364
- equipment is used according to the operating instructions.

Planmeca pursues a policy of continual product development. Although every effort is made to produce up-to-date product documentation this publication should not be regarded as an infallible guide to current specifications. We reserve the right to make changes without prior notice.

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1 INTRODUCTION

Planmeca Compact i Classic dental unit is an electrically controlled dental device that consists of a patient chair, cuspidor, delivery arm, dental instruments and an operating light. Planmeca Compact i Classic is meant to be used for dental treatment by dental care professionals.

This manual describes how to use the Planmeca Compact i Classic dental unit. Please read this manual carefully before using the unit.

NOTE The use of the Planmeca Compact i Classic dental unit is allowed only under the supervision of dental care professionals.

NOTE The Planmeca Compact i Classic dental unit is compatible with software revision 6.2.4 or later.

NOTE This manual is valid for software revision 6.2.4 or later.

NOTE In error situations, this manual is the primary source of information.

NOTE For information on OEM products, please refer to OEM documentation.

NOTE The water used by the Planmeca Compact i Classic dental unit instruments and cup fill are to be used for rinsing only.

NOTE The main water tap must be turned off when the dental care unit is not in use.

CAUTION A faulty or broken dental unit must not be used.

CAUTION Electromagnetic interference between the equipment and other devices can occur in very extreme conditions. Do not use the equipment in close conjunction with sensitive devices, or devices creating high electromagnetic disturbances.

CAUTION Switch off the unit before using an electrosurgical knife.

CAUTION Do not use the scaler on patients with cardiac pacemakers. The scaler can cause disturbance on the pacemaker's function.

Planmeca Compact i Classic dental unit is a medical device and complies with the following standards:

- IEC 60601-1 Medical electrical equipment - Part 1: General requirements for safety
- ISO 7494-1 Dentistry - Dental units - Part 1: General requirements and test methods
- ISO 7494-2 Dentistry - Dental units - Part 2: Water and air supply

CE 0598

Planmeca Compact i Classic dental unit fulfills the requirements of Directive 93/42/EEC.

All button illustrations indicate that the button on the display should be pressed. Pressing a button will either switch a function on or off, depending on the original setting, or change the value.

The display values shown in this manual are only examples and should not be interpreted as recommended values unless otherwise stated.

2 SYMBOLS

Type B equipment (Standard IEC 60878).

Alternating current (Standard IEC 60878).

Attention, consult accompanying documents (Standard ISO 7010).

General warning (Standard ISO 7010)

IPX1

Protected against dripping water (Standard IEC 60529).

Separate collection for electrical and electronic equipment according to Directive 2002/96/EC (WEEE).

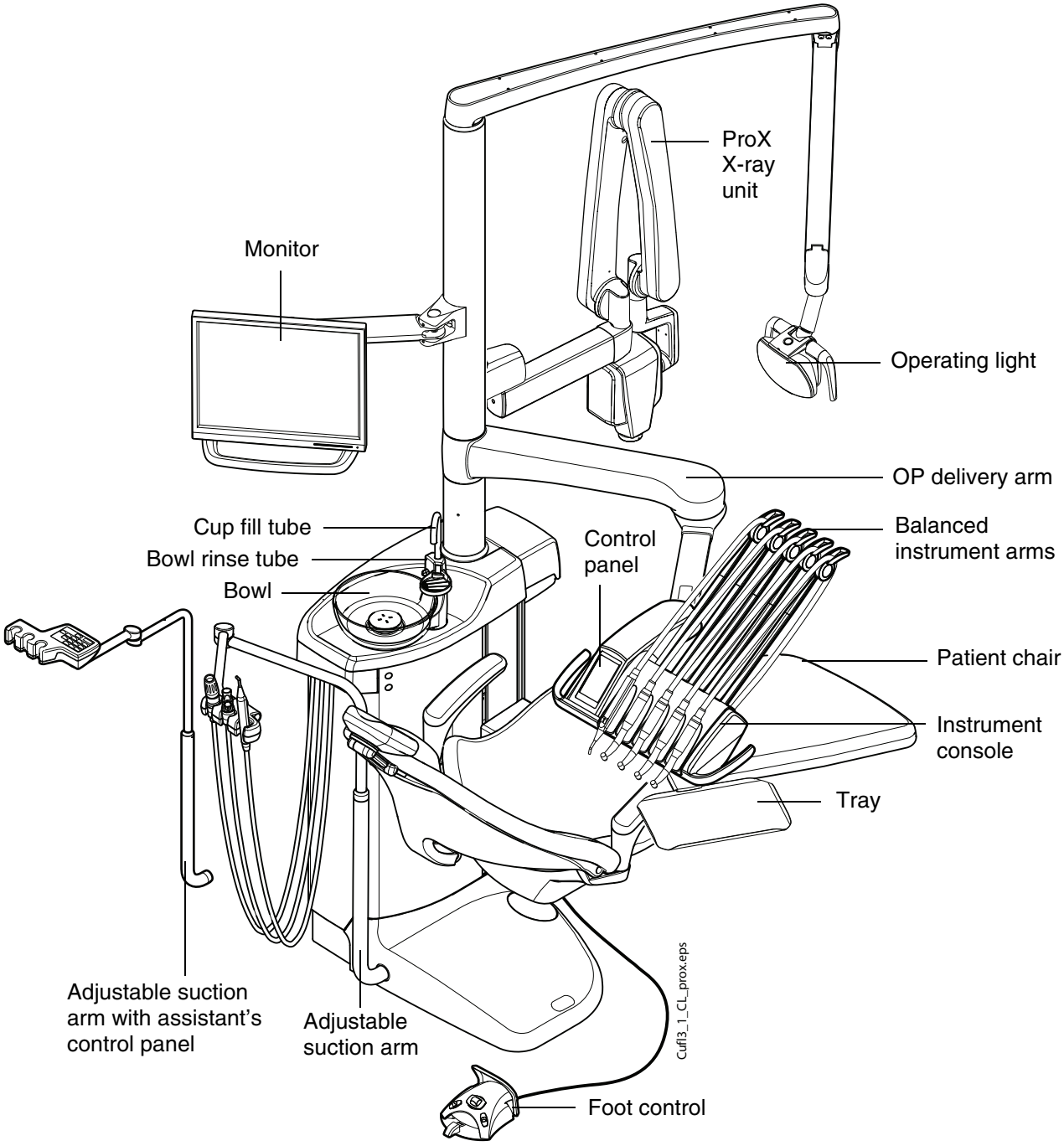
3 PREVENTIVE MAINTENANCE

To guarantee the unit's proper operation, the unit must be checked and serviced once a year by a qualified Planmeca service technician.

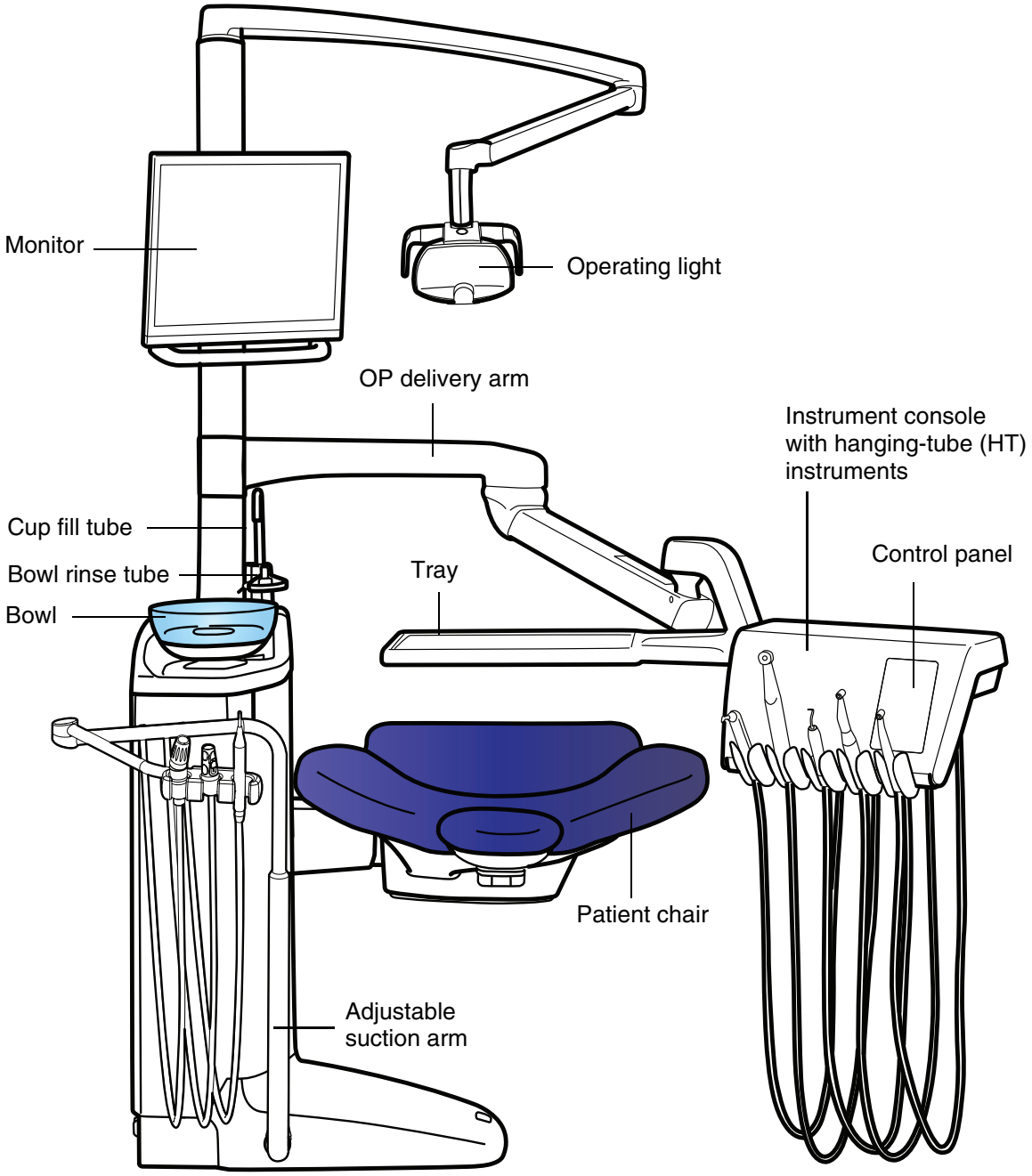
4 PLANMECA COMPACT i CLASSIC DENTAL UNIT

4.1 Dental unit configurations

4.1.1 Over-the-patient delivery with balanced instrument arms



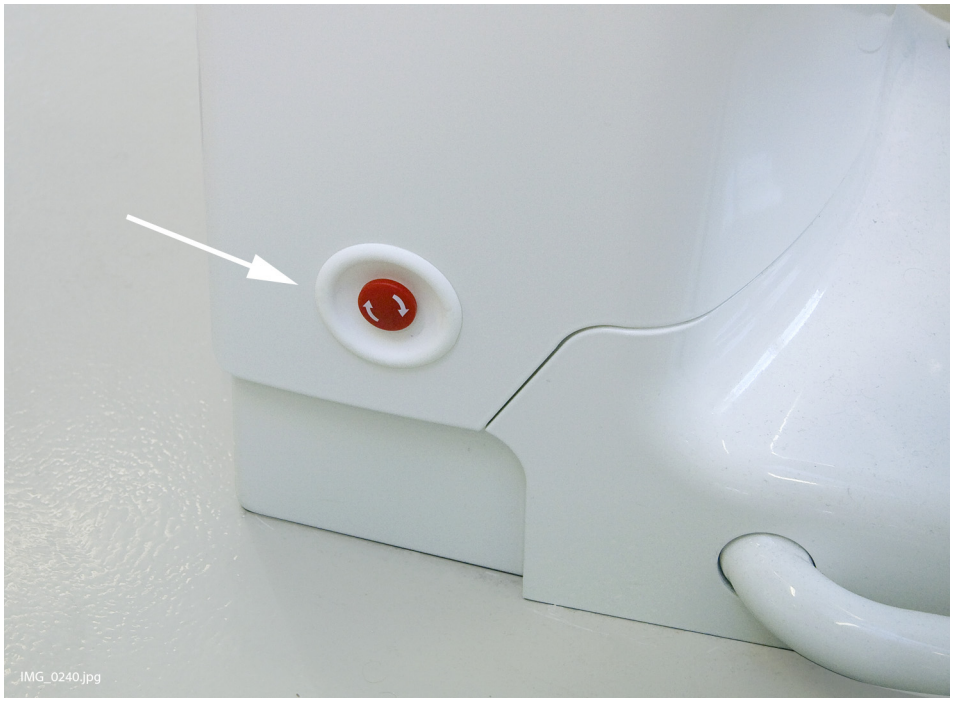
4.1.2 Over-the-patient delivery with hanging-tube instruments



4.2 Emergency stop button

In case of emergency the motorised up/down movements of the chair and the motorised backrest movements can be stopped by pushing in the emergency stop button located on the unit base. When the emergency stop button is pushed, help message HE 03 is displayed.

Turn the button clockwise and pull it out to enable the movements.

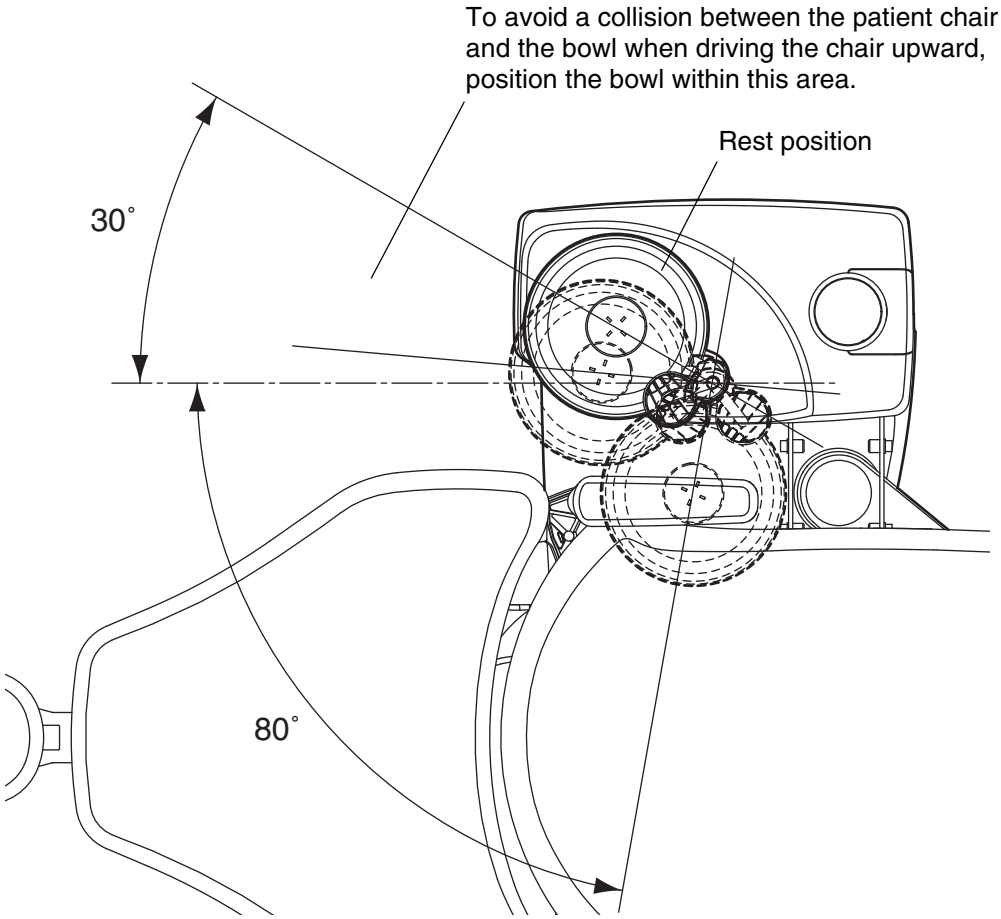


4.3 Bowl

The glass bowl is attached to the top of the cuspidor. It can be rotated 110° around its axis according to the figure below.

NOTE Always place the bowl in rest position.

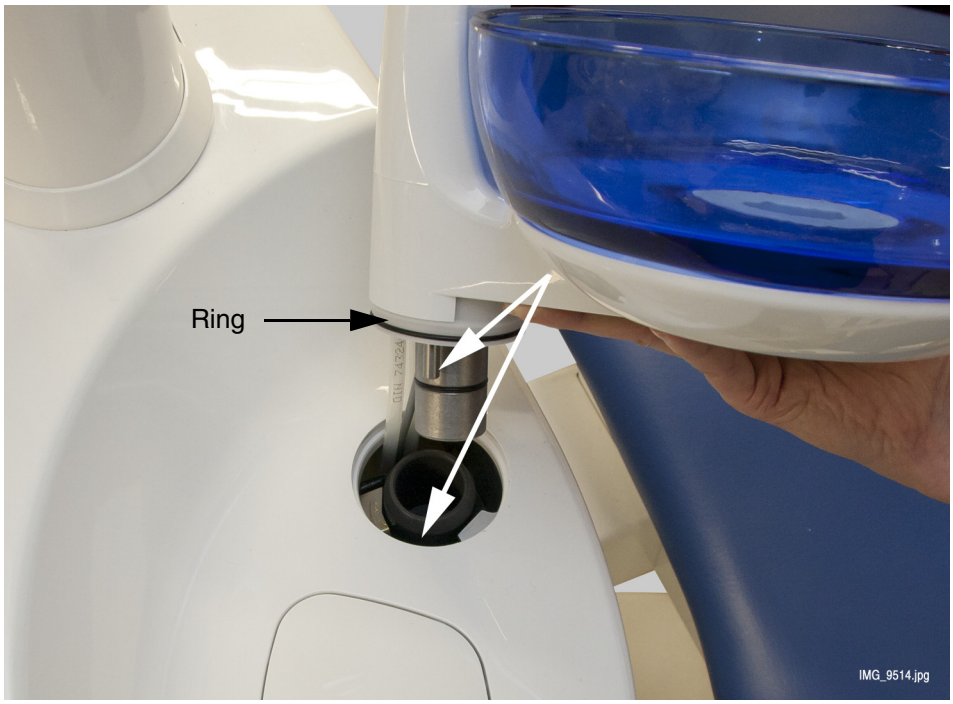
NOTE Make sure that the bowl is not above the patient chair when you drive the chair upward.


To avoid a collision between the patient chair and the bowl when driving the chair upward, position the bowl within this area.
Rest position
30˚
80˚

If the bowl assembly for some reason comes off the cuspidor you can put it back as follows:

1. Place the ring to the underside of the bowl assembly as shown in the picture in step 2.

2. Make sure that the peg goes into the slot as shown in the picture below.



3. Push the bowl downwards at the same time making sure that no cables are squeezed.
4. Turn the bowl assembly into place. You will know that it is in place when you hear the clicking sound of the micro switch.

4.4 Monitor

The monitor can be moved from its handle.

CAUTION ***Do not allow the patient to grab the monitor handle when getting seated or getting up from the patient chair.***

Clean the monitor according to the instructions in section 16.10 “Monitor” on page 63.

NOTE **Never spray water on the monitor or the PC.**

For more information, see the monitor’s user’s manual.

5 INSTRUMENT SYSTEM

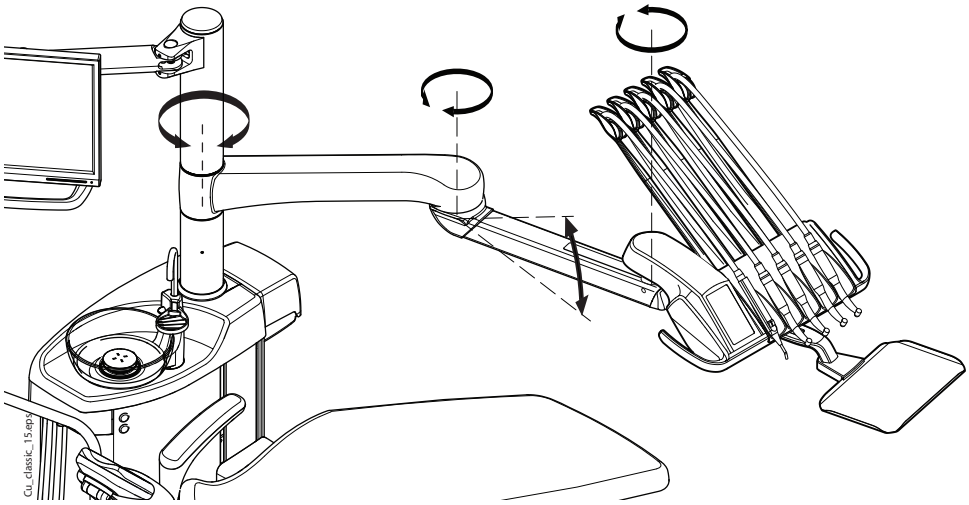
5.1 Over-the-Patient (OP) delivery arm

The OP delivery arm is attached to the top of the dental unit and swings over the chair.

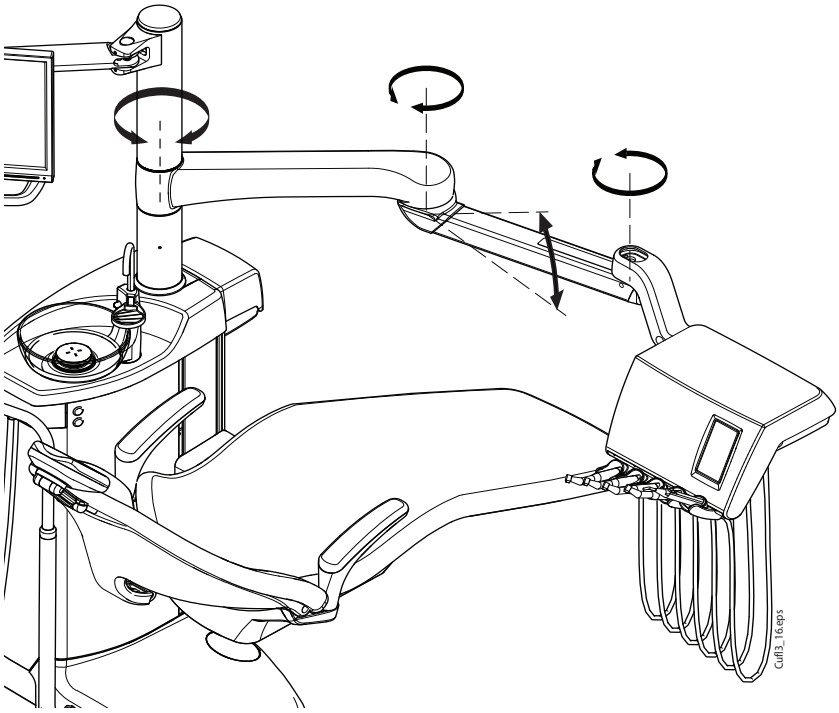
CAUTION Do not lean on the OP delivery arm.

The instrument console can be positioned using the handles on the console. The rotation area of the delivery arm is presented in the illustrations below. The items do not need to be locked into position.

The following presents the OP delivery arm with balanced instrument arms.

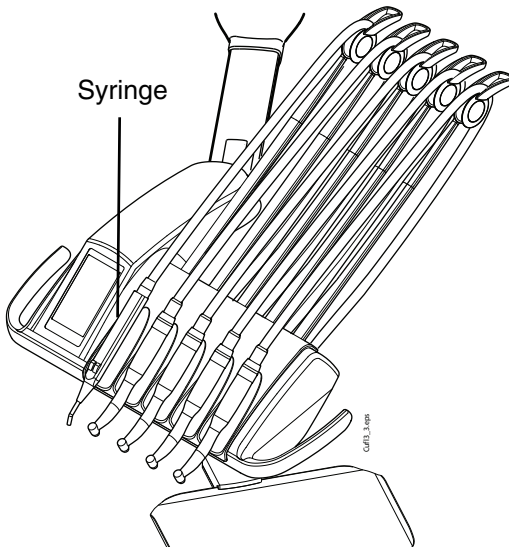


The following presents the OP delivery arm with hanging-tube instruments.

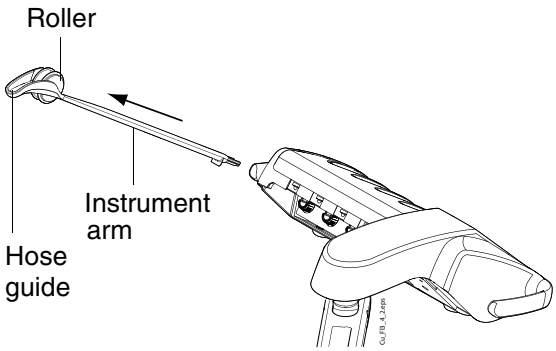


5.2 Instrument console

5.2.1 Instrument console with balanced instrument arms

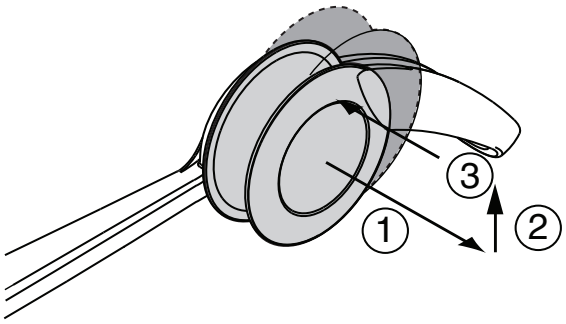


The console can be equipped with up to five instruments. The leftmost position is reserved for the syringe only. The other instruments can be positioned in any order in the four remaining positions.



The instrument arms can be removed by pulling them out from their holders, for example for cleaning. The arms are replaced simply by pushing them firmly into their places.

When replacing the instrument hose to the roller, bend the hook of the hose guide carefully and pass the hose over the roller.

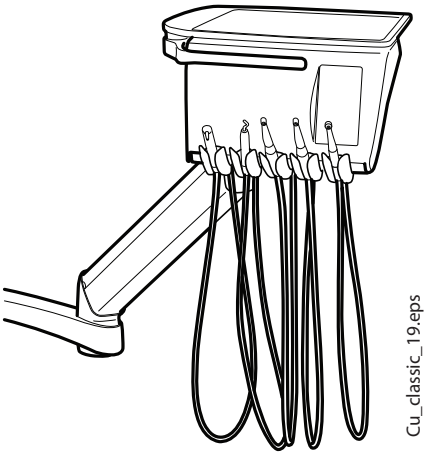


The balance of the instrument arms can be changed according to the weight of the instrument and personal preferences. Their flexibility can be adjusted as follows:

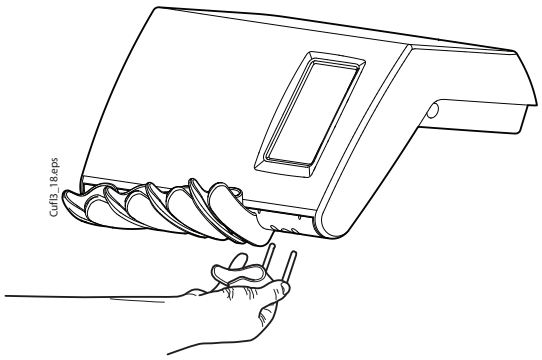
1. Pull out the roller.
2. Adjust the balance of the instrument arm by moving the roller to a desired position. Note that the higher up you position the roller, the lighter it is to bend the instrument arm.
3. Push the roller back in to lock its position.

NOTE **When balancing/adjusting the instrument arms, bear in mind that the instruments shall under no circumstances fall over the patient.**

5.2.2 Instrument console with hanging-tube instruments

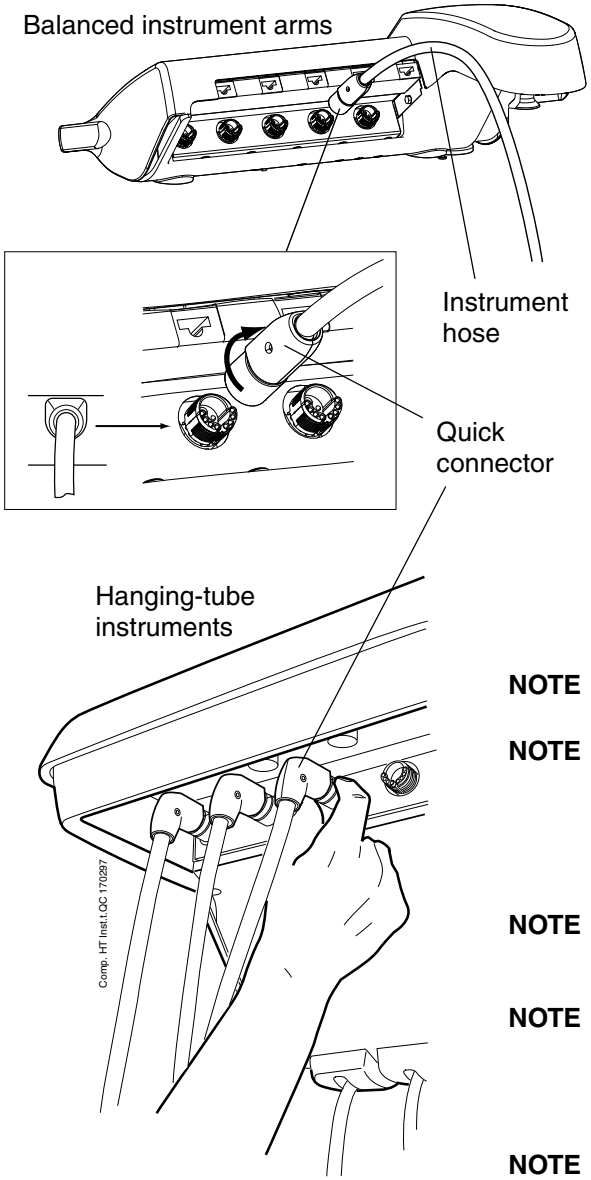


The console can be equipped with up to five instruments. The leftmost position is reserved for the syringe only. The other instruments can be positioned in any order in the four remaining positions.



The instrument holders can be removed by pulling them out from their openings, for example for cleaning. The holders are replaced simply by pushing them firmly into their places. The angle of the instrument holder can be slightly adjusted.

5.3 Quick connector hoses



The instruments are equipped with quick connector hoses to be connected to the instrument console. The hose is attached to its place by turning the connector locker clockwise, and removed by turning the connector counterclockwise. Make sure that the flat part of the connector is upward when attaching the connector to the console.

Switch the unit off before opening the quick connectors. When disconnecting the syringe, empty the water and air from the hose before opening the connector.

The instrument location can be changed simply by removing the instrument with its hose and reconnecting it to the new place. The old instrument settings will remain the same despite of the new location of the instrument hose.

The instrument selection can also be interchanged. The settings of the eight last used instruments are stored in the memory, and are recalled when the instrument is reconnected.

NOTE Make sure that the hoses are properly connected to the console to avoid any leakage.

NOTE Always make sure that the instrument hose is correct for the used instrument. The control system identifies the instrument hose, not the instrument. The control system does not recognise the instrument change, for example, the replacement of a turbine with an air motor.

NOTE If the outer casing of the instrument hose is broken, the entire hose must be replaced, although the hose itself might still be functioning.

NOTE The instrument sealings must be correct and unbroken, and the instrument must be attached properly to the hose connector. The leakage between the instrument and the connector causes leakage air to drift into the hose lining.

NOTE A scaler requires additional electronics and the scaler type can not be changed without changing electronics.

5.4 Instruments

The instrument console has five instrument positions. You can program each instrument so that the following functions will, where applicable, either be on or off when the instrument is picked up from the instrument console:

- instrument spray
- automatic chip blow
- fibre optic light
- reverse rotation (micromotor only)
- quickstart (air driven instruments only)

The type or magnitude of the following functions can be programmed:

- instrument spray
- automatic chip blow
- fibre optic light.

5.4.1 Instrument spray

The instrument spray can be programmed to be on or off when the instrument is picked up from the instrument console. Also, the type of spray can be programmed.

For more information, see section 14.3 “Instrument spray” on page 45.

5.4.2 Automatic chip blow

The automatic chip blow can be programmed to be on or off when the instrument is picked up from the instrument console. Also, the type of automatic chip blow can be programmed.

For more information, see section 14.4 “Chip blow” on page 46.

5.4.3 Fibre optic light

The fibre optic light can be programmed so that it will either be on or off when an instrument is picked up from the instrument console. Also, the intensity can be adjusted. For more information, see section 14.6 “Fibre optic light / LED light” on page 48.

The fibre optic light can be on only in one instrument at a time, for example, the fibre optic light of the syringe will switch off, if the light of the active instrument is switched on.

5.4.4 Reverse rotation of micromotor

The direction of the micromotor rotation can be reversed, see section 13.1 “Micromotor” on page 35.

5.4.5 Quickstart of air driven instruments

The turbine and air motor can be set to start with maximum speed, see section 13.2 “Turbine” on page 37.

5.5 Instrument logic

Especially in four-handed dentistry it is important to enable smooth cleaning and exchange of instruments between the dentist and the assistant. The Planmeca Compact i Classic dental unit contains an instrument logic with the principles described below. The active instrument can be operated with the foot control and its settings are shown on the control panel and they can be changed.

1. The last instrument picked up from the instrument console can be driven with the foot control (a short push to the right/left or down is enough).
2. After activating one instrument the others can be picked up from the console without changing the active instrument.
3. Only after the active instrument has been returned to the console another instrument can be activated by picking it up from the instrument console. After this, it can be driven with the foot control as above. Other instruments can be away from the console, but they can not be driven.
4. The memory operation of the logic settings makes it possible to store parameters and settings for up to eight instruments. Changing the place of the instrument on the console does not change the parameters and settings of that instrument.
5. The instrument logic does not control the syringe which can be used at any time.

NOTE **If you use similar instruments at the same time, keep them in their own places. The memory operation does not recognise the parameters and settings of the similar instruments if their places are changed.**

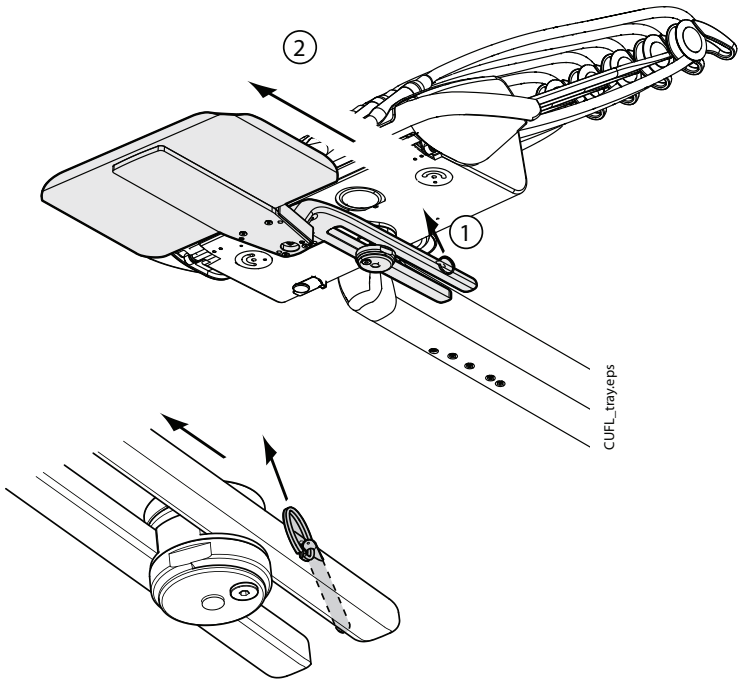
5.6 Tray tables

5.6.1 Quick-connect tray table

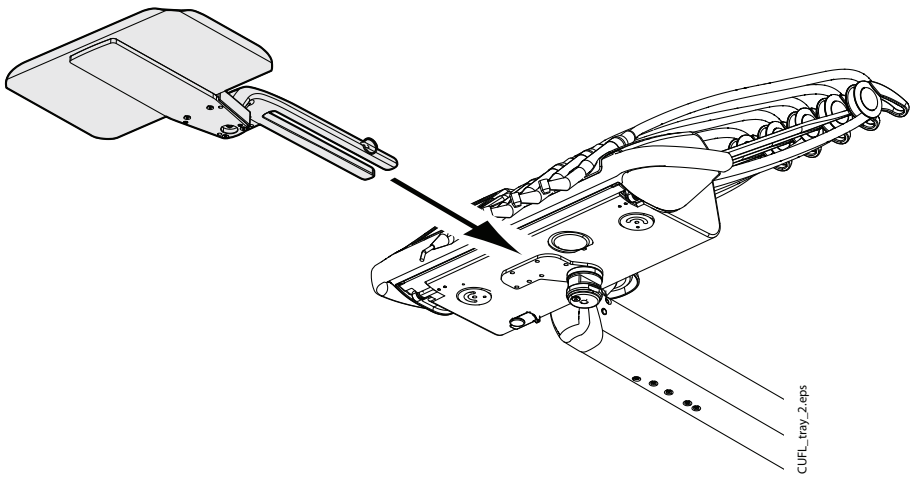
The quick-connect tray table is available for the instrument console with balanced instrument arms.

The tray table is attached to the mounting arm with a magnetic connector and can easily be attached and detached. You can rotate the table 360° to the desired position. The maximum load on the quick-connect tray is 2 kilograms (4,4 lbs).

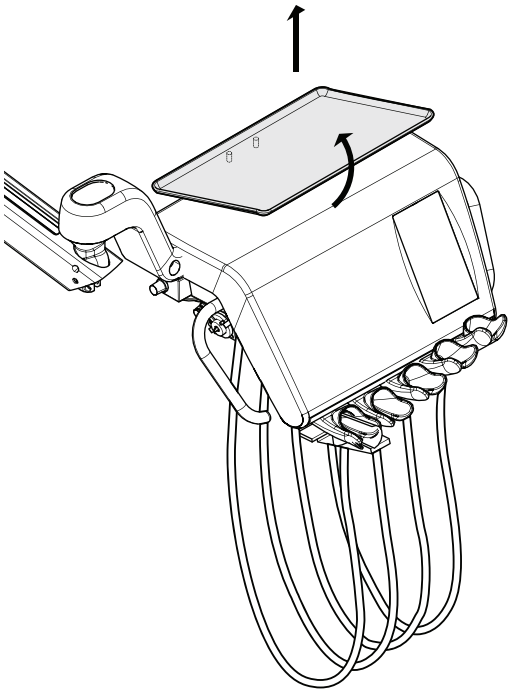
The tray mounting arm is attached to the instrument console with a quick connector. The tray assembly can be removed from the instrument console. as follows. Pull the ring of the locking mechanism outwards (1) and pull the tray arm away from its position (2).



The mounting arm can be attached to the instrument console by pushing it to its position.



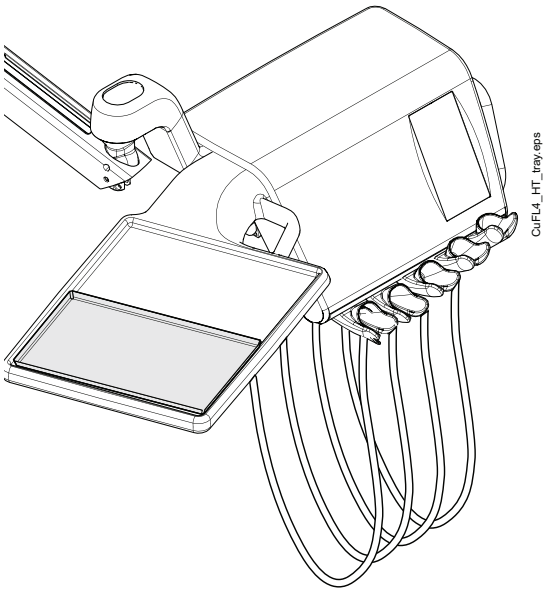
5.6.2 Top tray table



The top tray table is placed on top of the instrument console and is available for OP-deliveries with hanging-tube instruments. The maximum load on the top tray table is 2 kilograms (4,4 lbs).

The tray table is attached to the instrument console with a quick connector, enabling an easy attachment and detachment of the tray table.

5.6.3 Integrated tray table



The integrated tray table is available for OP-deliveries with hanging-tube instruments. The maximum load on the tray table is 2 kilograms (4,4 lbs).

The integrated tray table is located on the left side of the instrument console.

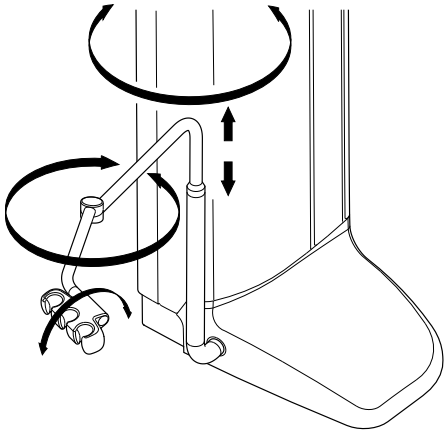
5.6.4 Mouse tray

The mouse tray can be attached to the rear of the patient chair, or, if the assistant's mouse tray is selected, to the suction arm post.

6 SUCTION SYSTEM

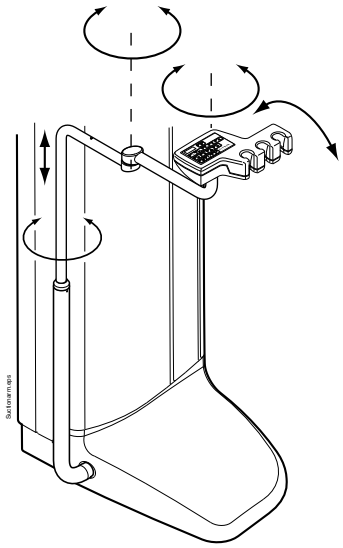
6.1 Suction arms

6.1.1 Adjustable suction arm



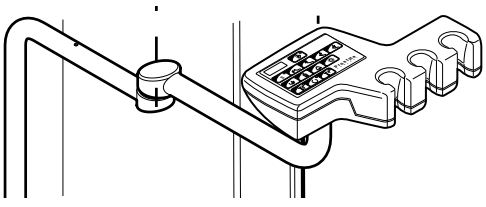
The adjustable suction arm is attached to the side of the unit base.

6.1.2 Adjustable suction arm with assistant's control panel



The adjustable suction arm with assistant's control panel is attached to the side of the unit base.

6.2 Suction tube holders

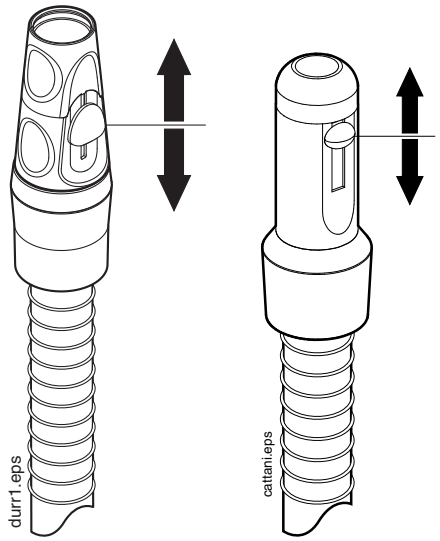


The suction holder has three openings, one for the high-power suction tube, one for the saliva suction tube and one spare position that can be used either for the assistant's syringe or the assistant's polymerisation light.

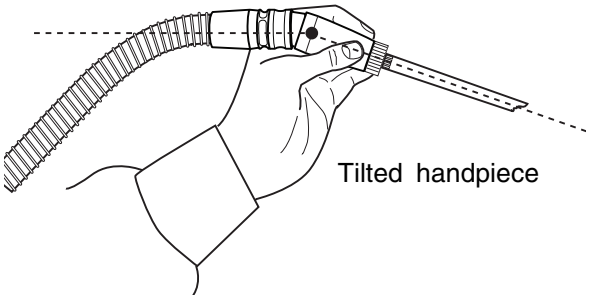
6.3 Suction handpieces

When a saliva or high-power suction handpiece is lifted from its holder, the suction will automatically start. When the handpieces are returned, the suction will stop.

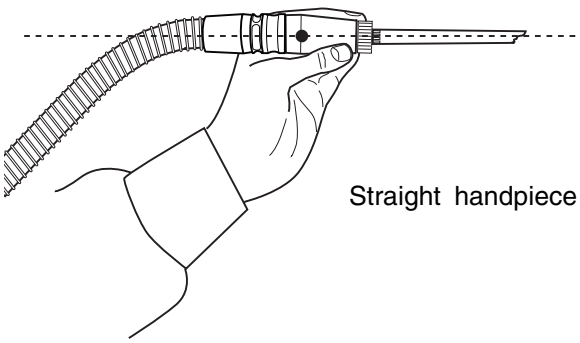
When you are using the suction handpiece, the suction can be controlled by sliding the adjuster up or down.



High-power tilting suction handpiece



When you lift the suction handpiece from its holder the weight of the suction tube will cause the end of the handpiece to “tilt” slightly. This action opens the handpiece valve allowing the suction to start.



You can stop the suction temporarily by “straightening” the suction handpiece with your thumb and forefinger.

If you temporarily put the suction handpiece down during dental treatment, the suction will automatically stop as the force of the suction will straighten the handpiece.

7 PATIENT CHAIR

The patient chair is equipped with a fixed legrest.

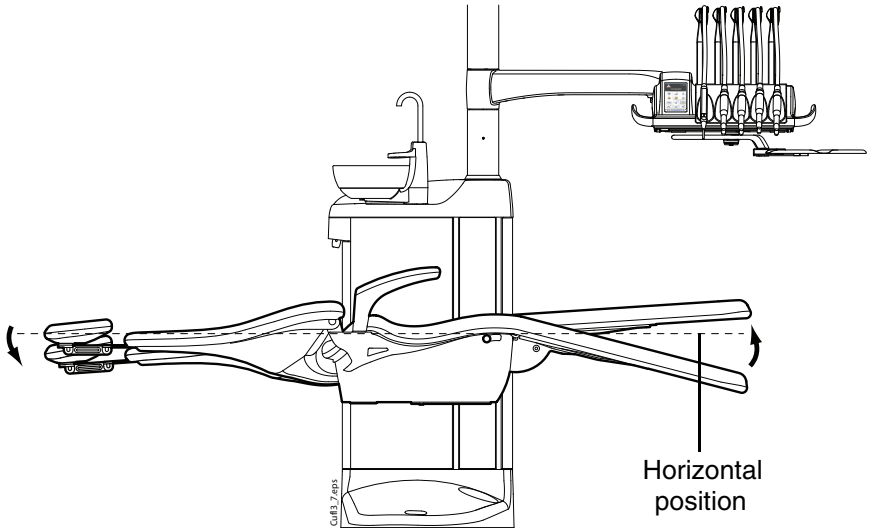
NOTE **Dark coloured clothes may cause coloured stains on the bright coloured upholstery.**

CAUTION ***Do not sit on the legrest.***

7.1 Trendelenburg position

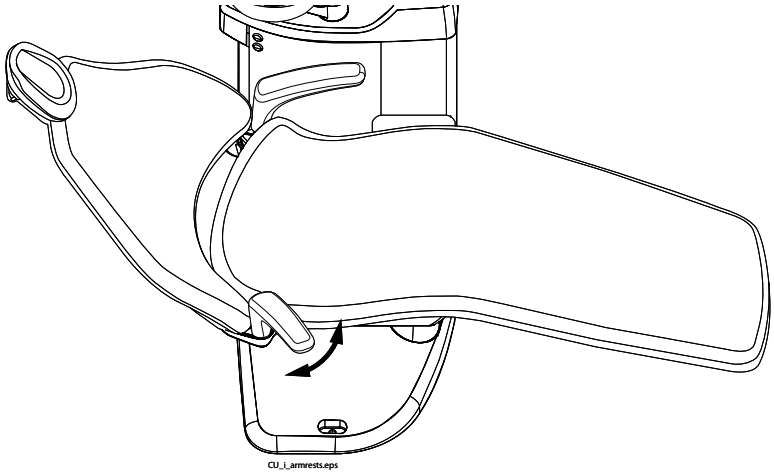
If required, the patient chair can be inclined from the horizontal position to the Trendelenburg position. In the Trendelenburg position the legrest is in the horizontal position and the backrest is driven -4° from the horizontal position.

To drive the patient chair to the Trendelenburg position first drive the chair to horizontal position, and press once more *Chair position A* to drive the backrest to -4° position.



7.2 Armrests

The right armrest can be moved 90° outwards. Before you move the armrest you must lift it slightly to unlock it. The armrest can be locked into the positions presented below.



Surgical armrest

As an option, a surgical armrest is available. The patient's arm can be strapped to the armrest when, for example, infusing saline solution.

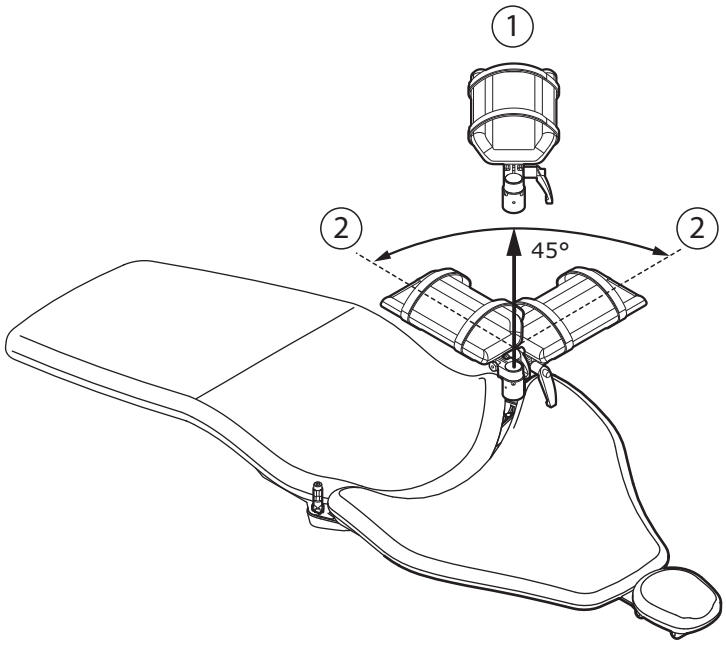
NOTE **Make sure that the patient does not lean on the armrest when getting in or out of the chair.**

To move the armrest horizontally you must lift it slightly to unlock it.

To replace the right standard armrest with the surgical armrest you must first detach the standard armrest. To do so, lift the armrest slightly to unlock it and move the armrest to a 45° position. When the armrest is in a 45° angle, lift it straight up to remove it (1).

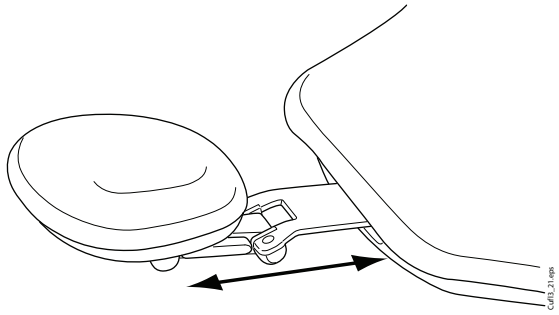
Once you have removed the standard armrest, place the surgical armrest on the spindle in a 45° angle, push the armrest down and rotate in either direction until it locks into place (2).

The surgical armrest is removed in the same way as the standard armrest.



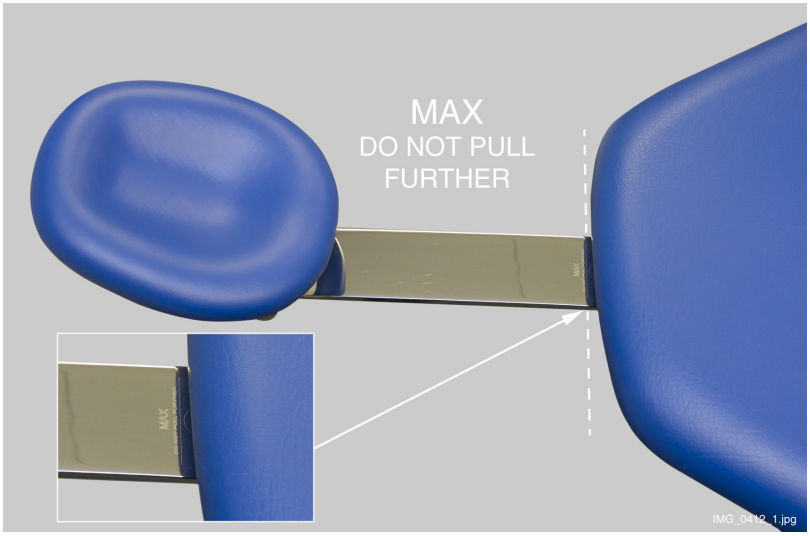
7.3 Manual headrest

7.3.1 Adjusting height of headrest

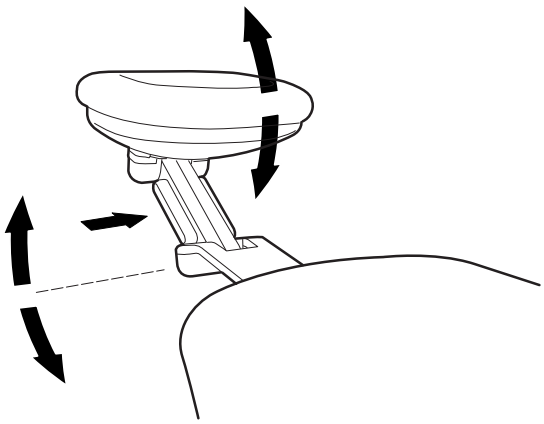


The height of the headrest can be adjusted by sliding it manually.

NOTE **The headrest can only be pulled out as far as to the MAX mark.**

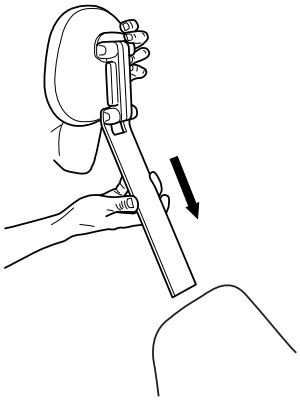


7.3.2 Adjusting headrest angle



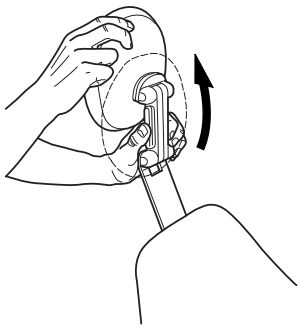
To adjust the angle of the headrest press the bar on the side of the headrest support to release the locking mechanism. Manually set the headrest to the required angle and release the bar. When adjusting, the headrest should be supported by hand.

7.3.3 Adjusting headrest for children or short patients

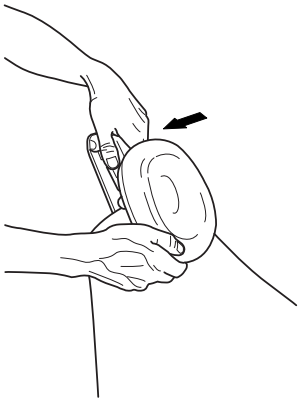


The headrest can be turned around and repositioned for better head support for children or short patients.

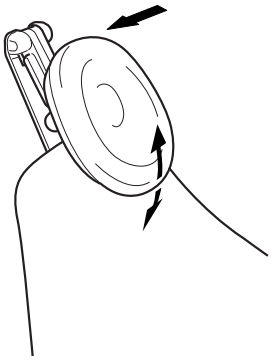
Pull the headrest out. Turn it around so that the cushion faces backward and push the headrest back into the chair.



Turn the cushion around (180° counterclockwise).



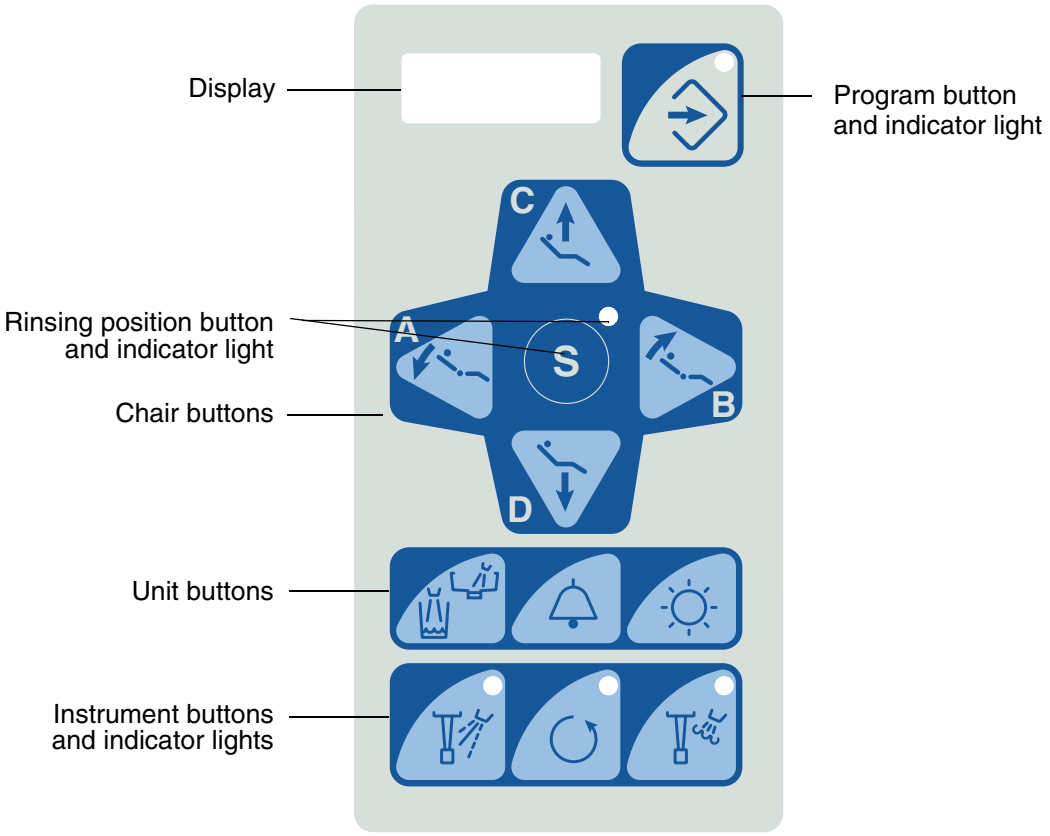
Press the bar on the side of the headrest support to release the locking mechanism and position the headrest at the top of the chair.



The headrest is now repositioned. To adjust the angle of the headrest press the locking bar. Manually set the headrest into the required position and release the bar. When adjusting, support the headrest with your other hand.

8 CONTROL PANEL

8.1 Dentist's control panel



The control panel is located on the instrument console. The dentist can use it to control and program the instruments, the dental unit, and the chair. Also, maintenance procedures can be started from the control panel.

The instrument buttons are used to operate and program the settings of the active instrument.

When the instrument is removed from its holder, the indicator light on the instrument button displays the current operation status of the instrument.

During programming, the indicator light on the instrument button indicates whether the function is selected to the active instrument.

The indicator light on the *Rinsing position* button shows when the chair is in the rinsing position.

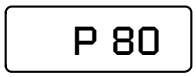
The indicator light on the *Program* button shows when the unit is in the programming mode.

In case of malfunction, an error code or a help message is shown on the display, see section 19 "HELP & ERROR MESSAGES" on page 72.

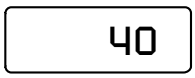
Display

The display shows information related to the current operation and changes accordingly.

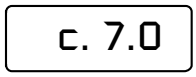
Speed / power



Curing time



In normal operation the speed or power of the active instrument is shown on the display (percentage of the maximum value). If the polymerisation light is the active instrument, the display shows the current curing time.



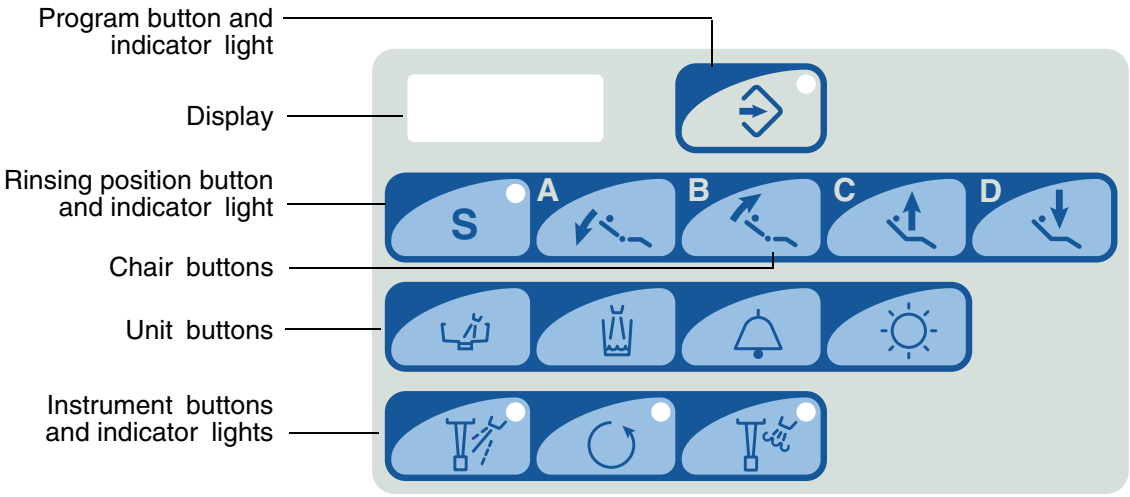
In the programming mode the setting to be changed is shown on the display, see section 14 “PROGRAMMING” on page 43.

In case of malfunction, an error code or a help message is shown on the display, see section 19 “HELP & ERROR MESSAGES” on page 72.

8.2 Optional assistant’s control panel

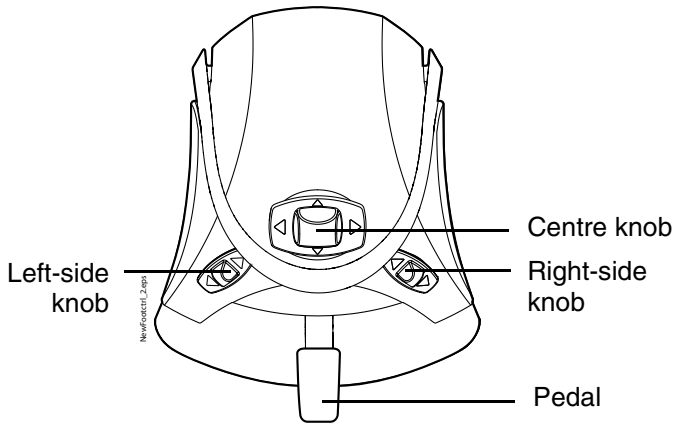
In addition to the dentist’s control panel, a control panel for the assistant is available as an option. Both panels can be used for controlling and programming the instruments, the dental unit, and the chair.

The only difference between the dentist’s and the assistant’s control panel is that on the assistant’s control panel the *Cup fill / bowl rinse* button has been replaced by separate cup fill and bowl rinse buttons.



9 FOOT CONTROL

The Planmeca Compact i Classic dental unit has one integrated foot control that operates the instruments, the unit and the chair.



CAUTION The foot control is a precision instrument. Do not stand on or apply unnecessary force to the foot control and its knobs.

Standard pedal

Wide pedal

Two foot control pedals are available: the standard pedal and a slightly wider pedal that functions like a gas pedal when you drive the instrument. That is, the further down you push the pedal, the higher the instrument speed is. The functional differences between the standard pedal and the wide pedal only apply to the micromotor, turbine and scaler, and are described in the table below.

Function	Standard pedal	Wide pedal
Increase instrument speed	Push pedal to left/right	Push pedal down
Change instrument spray type	Push pedal down briefly	Push pedal to left
Activate manual chip blow	Push and hold pedal down	Push pedal to right
Activate momentary spray	Push pedal down briefly while driving instrument	N/A

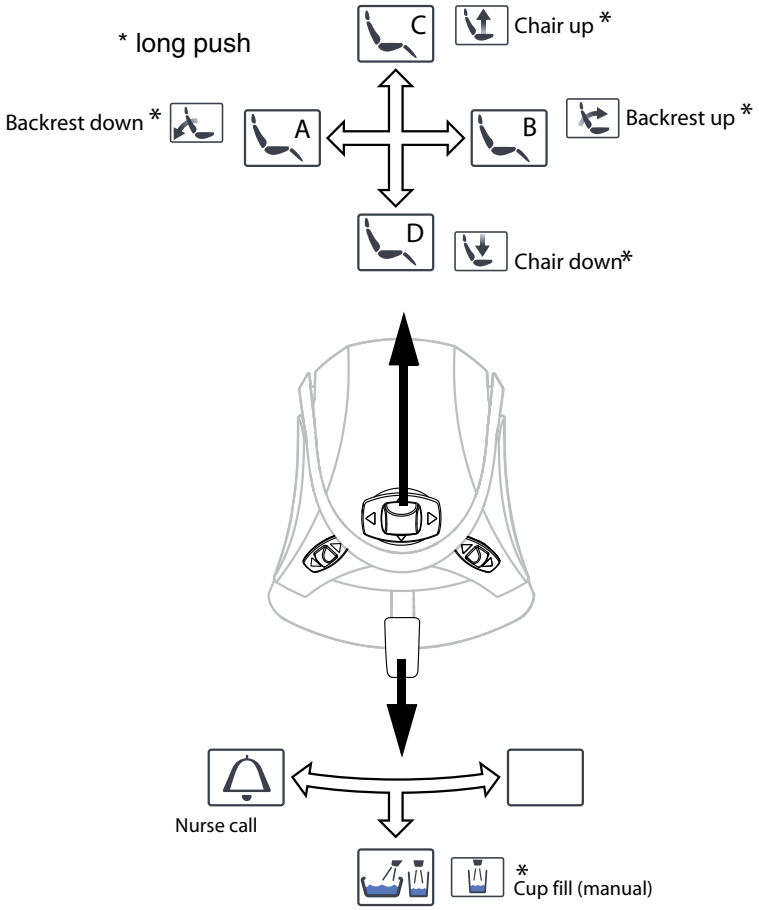
NOTE If you want to change from a standard pedal to the wide pedal, or vice versa, please contact a qualified Planmeca service technician.

NOTE The differences in functionality only applies to the operation of some instruments, not the operation of the dental unit, chair or headrest.

NOTE When the functionality of the foot control pedal is different for the standard pedal and the wide pedal, this is clearly indicated in the text and picture. When the text refers to the foot control pedal in general without making this differentiation, the same functionality applies to both types of pedal, although the illustration only presents the standard pedal.

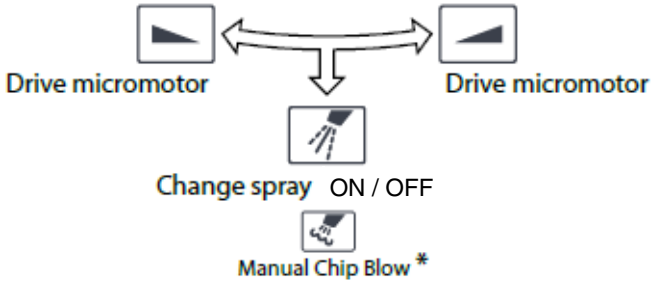
The factory default functions of the foot control when the dental unit is equipped with a normal headrest, a standard pedal and no instrument is activated are presented below.

NOTE **The left- and right-side knobs have no functionality.**

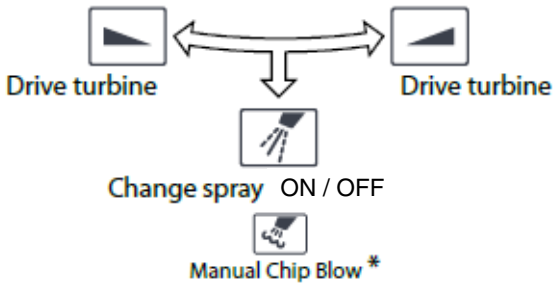


When an instrument is activated, the functions of the standard pedal depend on the used instrument. These instrument-specific functions are presented below.
(* = long push)

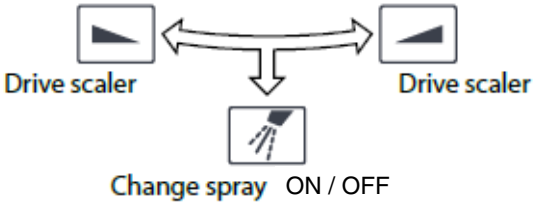
Micromotor:



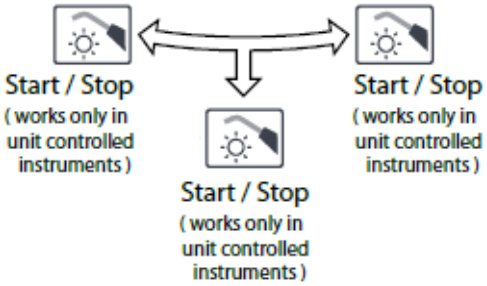
Turbine:



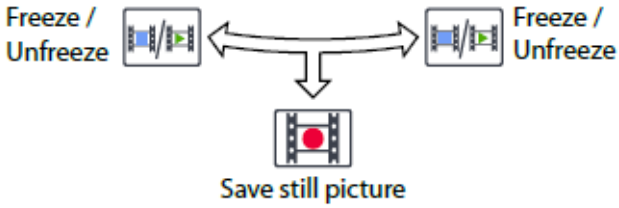
Scaler:



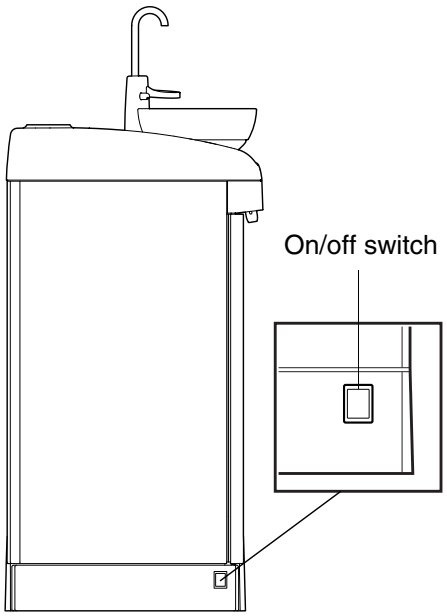
Polymerisation light:


Start / Stop
(works only in unit controlled instruments)
Start / Stop
(works only in unit controlled instruments)
Start / Stop
(works only in unit controlled instruments)

Intraoral camera:

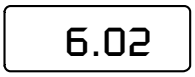


10 SWITCHING UNIT ON AND OFF



The ON/OFF switch is located at the rear of the unit base. Press the switch once to turn the unit on. Pressing the switch a second time will turn the unit off.

When the unit is switched on, the ON/OFF switch light is on.



The control panel briefly shows the software version number.

11 OPERATING PATIENT CHAIR

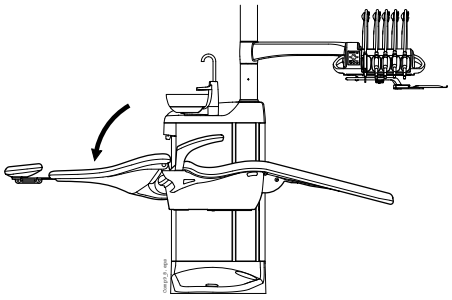
NOTE **All chair movements are blocked when an instrument, excluding syringe, is operated.**

NOTE **The operating light intensity will decrease slightly when the chair is moving.**

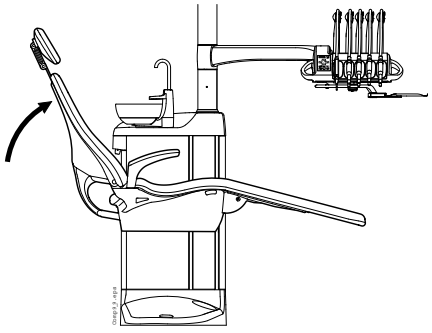
CAUTION ***The patient chair can be operated remotely with the Planmeca Romexis Clinic Management module. Before operating the chair remotely, make sure that the chair movements cannot cause harm to the patient or to the user of the dental unit. For detailed information, see Planmeca Romexis Clinic Management user's guide.***

11.1 Manual operation

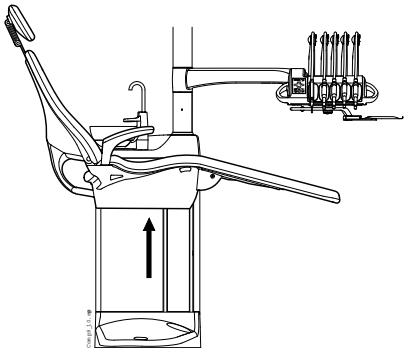
CAUTION ***When driving the chair near the upper limit, make sure that the console arm does not press or hit the patient.***



To drive the backrest down, press and hold the A button until the chair reaches the required position.

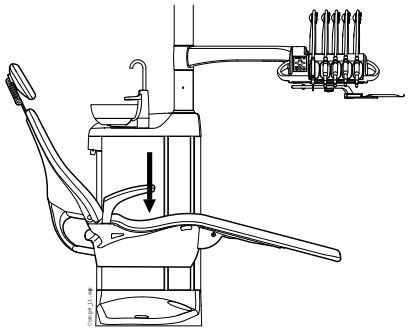


To drive the backrest up, press and hold the B button until the chair reaches the required position.



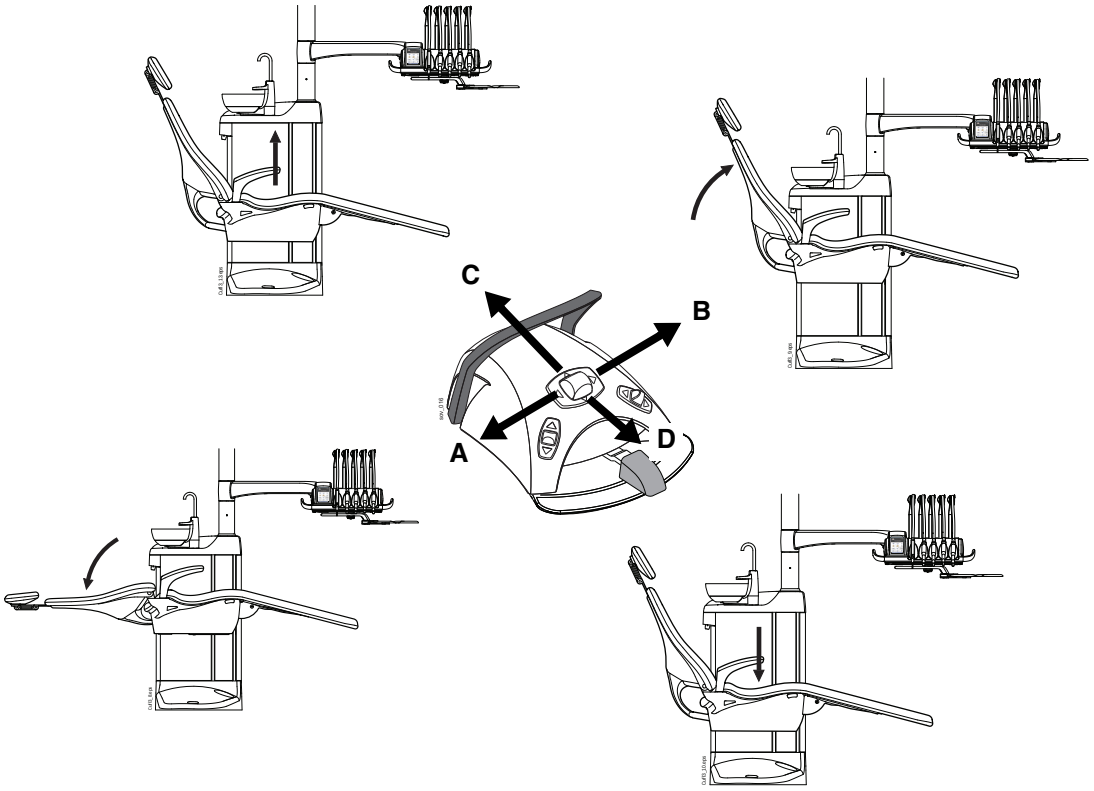
To drive the chair up, press and hold the C button until the chair reaches the required position.

NOTE **Make sure that the bowl is not above the patient chair when driving the chair upward.**

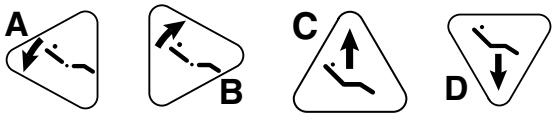


To drive the chair down, press and hold the D button until the chair reaches the required position.

Alternatively, you can adjust the position of the chair with the foot control. **Push and hold** the centre knob in the desired direction (see picture below). When the chair reaches the desired position, release the centre knob. You can steer the chair only in one direction at a time.



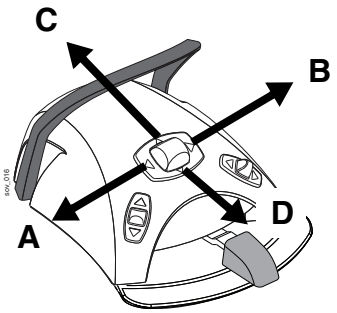
11.2 Automatic operation



Automatic chair positions may be stored into memory. See section 14.2 “Automatic chair positions” on page 44.

Press briefly the chair position button where the required position is stored.The chair will move automatically to the preprogrammed position.

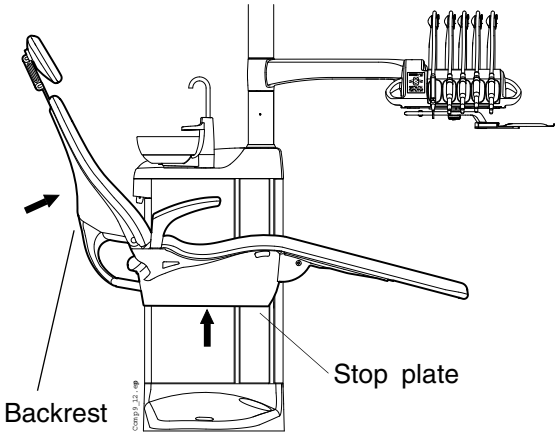
To stop the chair from moving, either press any of the chair positioning buttons, push the foot control pedal in any direction, or push the foot control centre knob in any direction.



Alternatively, you can use the foot control to drive the chair to the automatic positions.

Push the centre knob briefly to the position (A, B, C or D) where the preprogrammed chair position is stored. The chair will move automatically to the preprogrammed position.

To stop the chair from moving before it reaches the preprogrammed position push the foot control pedal or the centre knob in any direction.



The chair movement stops also when the stop plate is pushed or when the backrest is pressed upwards. The chair can be driven normally after the possible obstruction has been removed.

When the chair has reached its preprogrammed position the position can be adjusted. To drive the chair to the required position, use the foot control's centre knob or the chair positioning buttons on the control panel in a non-automatic mode.

The operating light is programmed to switch on or off in preprogrammed positions. The light goes off when the chair begins to move to a position where the light has been programmed to be off, but goes on only after the chair has reached the programmed position, where the light has been programmed to be on. For more information on how to program the automatic positions, see section 14.2 "Automatic chair positions" on page 44.

11.3 Rinsing position

Press *Rinsing position* to move the chair to the preprogrammed rinsing position. The indicator light flashes throughout the movement. Filling the cup starts automatically, the bowl is rinsed, and the operating light goes off.

NOTE The water in the dental unit is intended for rinsing only, not for drinking.

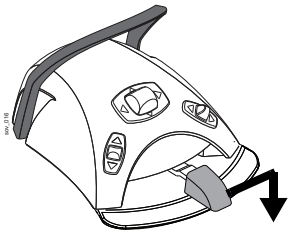
When the chair stops in the rinsing position, the indicator light remains on.

Press *Rinsing position* a second time to return to the working position. The chair remembers this previous position even though it has been moved into the rinsing position. Bowl rinsing starts automatically. The indicator light flashes throughout the movement. When the chair stops, the operating light turns back on, if it was on initially.

NOTE If you press and hold the *Rinsing position* button when moving the chair to the rinsing position, you will enter the position normally, but when the chair stops in the rinsing position the indicator light goes off and the chair does not remember its previous position.

NOTE If you press and hold the *Rinsing position* button when the chair is in the rinsing position, the indicator light goes off, and the chair will forget the previous position (the return function is inactivated).

NOTE The unit can be set up so that the indicator light on the *Rinsing position* button goes off and the previous position is forgotten, when you are driving from the rinsing position to a preprogrammed position. Next time you press *Rinsing position*, the chair will move to the rinsing position. Contact your Planmeca dealer.



Alternatively, you can drive the chair to the rinsing position by pushing the pedal to the far right and down.

For information on how to program the rinsing position, see section 14.2 “Automatic chair positions” on page 44.

12 OPERATING DENTAL UNIT

12.1 Bowl rinse

Dentist's control panel: Press *Bowl rinse / cup fill* briefly to rinse the bowl. Bowl rinsing can be stopped before it stops automatically by pressing the button briefly again.

Assistant's control panel: Press *Bowl rinse* briefly once to rinse the bowl. The bowl rinsing can be stopped before it stops automatically by pressing the button twice.

The flow rate of the bowl rinse can be adjusted by turning the black knob inside the unit, see section 15.1 "Adjusting cup fill and bowl rinse flow rates" on page 53.

The duration of bowl rinsing can be programmed, see section 14.8 "Duration of bowl rinsing and cup filling" on page 50.

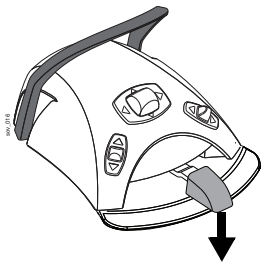
12.2 Cup fill

Dentist's control panel: Press *Bowl rinse / cup fill* twice or press the button once until the cup filling starts (0.5 - 1 sec.) and the unit will automatically fill the cup and then rinse the bowl. Cup filling can be stopped before it stops automatically by pressing the button briefly.

If the button is pressed for longer than 1 second, water flows for as long as the button is pressed, and the bowl is not rinsed.

Assistant's control panel: Press *Cup fill* briefly and the unit will automatically fill the cup and then rinse the bowl. Cup filling can be stopped before it stops automatically by pressing the button briefly.

If the button is pressed for longer than 1 second, water flows as long as the button is pressed, and the bowl is not rinsed.



Foot control: When all the instruments are in their holders you can fill the cup either by pushing the pedal down twice or by pushing the pedal down once until the filling starts (0,5 - 1 sec.). The unit will automatically fill the cup and then rinse the bowl. Cup filling stops automatically after a preset time. Cup filling can be stopped before it stops automatically by pushing the pedal briefly down.

If the pedal is pushed for longer than 1 second, water flows for as long as the pedal is pushed, and the bowl is not rinsed.

The flow rate of the cup fill can be adjusted by turning the black knob inside the unit, see section 15.1 "Adjusting cup

fill and bowl rinse flow rates" on page 53.

The duration of the cup fill can be programmed, see section 14.8 "Duration of bowl rinsing and cup filling" on page 50.

NOTE The cup fill is not activated unless the cup is positioned in its place under the cup fill tube.

NOTE The water in the dental unit is intended for rinsing only, not for drinking.

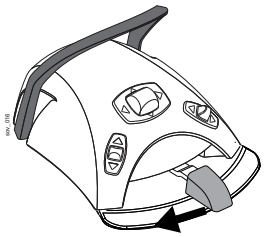
12.3 Door open / assistant call

If you have installed a door opening device or assistant call, you may activate these from the control panel or the foot control.

NOTE Only one of these functions can be enabled at a time. To change the enabled function, contact your Planmeca dealer.

Control panel: Press *Door open / assistant call* to activate the function. You will hear a short signal tone when the function starts.

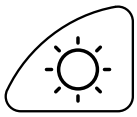
Press *Door open / assistant call* for longer than 0.5 seconds to continue the function until the button is released.



Foot control: When all the instruments are in their holders you can push the pedal to the left to activate the *Door open / assistant call* function. If the pedal is pushed for longer than 0.5 seconds, the function continues for as long as the pedal is pushed.

The duration of the signal can be programmed, see section 14.10 "Duration of door open / assistant call" on page 52.

12.4 Planmeca SingLED Operating light



Press *Operating light* to switch the operating light on or off.

The intensity of the operating light can be programmed, see section 14.9 “Intensity of operating light” on page 51.

The intensity can also be adjusted by holding down the *Operating light* button on the control panel or keeping your hand in front of the infrared light sensor of the operating light for longer than one second. After one second, the intensity will increase until you release the button/switch. When you press/press and hold the button/switch again, the intensity will start to decrease.

The intensity starts to decrease/increase after the maximum/minimum value has been reached. When the limit value is reached, you will hear a short signal tone.

NOTE The operating light intensity will decrease slightly when the chair is moving.

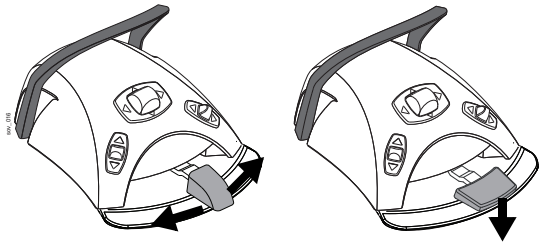
NOTE When the polymerisation light is taken from the holder and returned to it within 2 seconds the operating light will dim. This feature is configurable; contact your Planmeca dealer.

NOTE You can change the operation mode of the light by pressing the on/off switch for more than 15 seconds (you will hear two signal tones, one after 3 and one after 15 seconds):
1) The operating light can be switched on/off and the brightness can be adjusted from both the light and the dental unit.
2) Brightness adjustment can be done only from the operating light. The light can be switched on/off from both the operating light and the dental unit.

13 OPERATING INSTRUMENTS

13.1 Micromotor

Speed/power



Standard pedal: To drive the micromotor push the foot control pedal to the right or to the left.

Wide pedal: To drive the micromotor push the foot control pedal down.

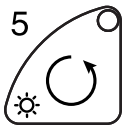
Pushing the pedal further to the right/left or down will increase the speed or power of the micromotor. As you push the pedal the power output will appear on the display. The normal range is 10 - 100%.

To stop the micromotor allow the pedal to return to the rest position.

NOTE **The speed/power level depends on the instrument.**

CAUTION ***Ensure that the pedal is in rest position when you activate the micromotor.***

Reverse rotation

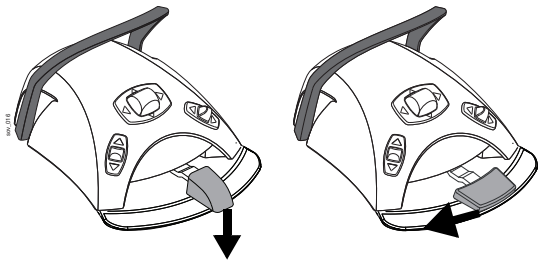


In normal operation the micromotor rotates in a clockwise direction. To reverse the direction of rotation press *Reverse*. Reversing is possible only when the micromotor is picked up from the instrument console, but not operated. When the micromotor rotates in the reverse direction, the indicator light is amber.

Instrument spray

Press *Instrument spray* to turn the instrument spray on or off. When the indicator light is lit the spray is on and the spray of water, air or both of them are flowing when operating the instrument.

The spray flow rate can be programmed. See section 14.3 “Instrument spray” on page 45.



Alternatively, you can turn the instrument spray on/off with the foot control.

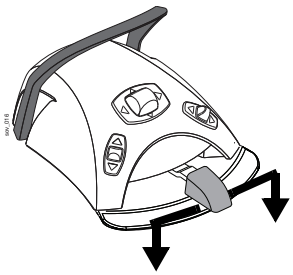
Standard pedal: Push the pedal down briefly to turn the instrument spray on/off.

Wide pedal: Push the pedal briefly to the left to turn the instrument spray on/off.

NOTE **The spray must be switched off when using an instrument without a waterline inside the handpiece.**

NOTE **The instrument spray operated with the foot control can be disabled in the service mode, in which case you can switch the spray on and off only from the control panel. Contact your Planmeca dealer.**

Momentary spray

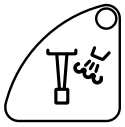


When you are driving the micromotor, you can activate the momentary spray by pressing the foot control pedal down. The spray will continue until you remove your foot from the pedal.

NOTE **The momentary spray can be enabled and configured in the service mode, contact your Planmeca dealer.**

NOTE **The momentary spray can not be activated with the wide foot control pedal.**

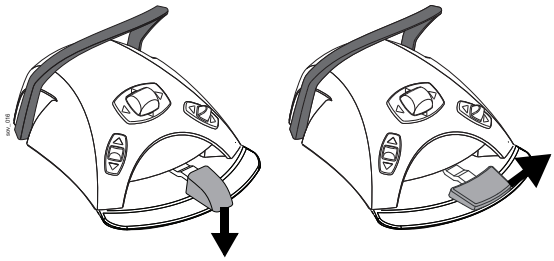
Automatic chip blow



Press *Chip blow* to switch the automatic chip blow on or off. When the indicator light is lit, the automatic chip blow is on and two short blows of water, air, or both will occur after the micromotor is stopped.

The type of chip blow can be programmed, see section 14.4 “Chip blow” on page 46.

Manual chip blow



Standard pedal: You can temporarily activate the manual chip blow by pushing and holding down the pedal.

Wide pedal: You can temporarily activate the manual chip blow by pushing and holding the pedal to the right.

The flow of air will continue until you remove your foot from the pedal.

NOTE **The type of manual chip blow does not depend on the type of the automatic chip blow, but is always dry. The manual chip blow can be set to be dependent on programming; contact your Planmeca dealer.**

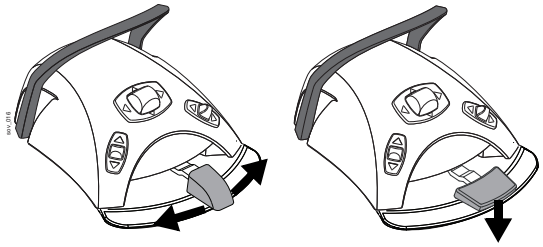
Fibre optic light

The instrument’s fibre optic light is either on or off when you pick up the instrument from the instrument console.

Whether the light is on or off, as well as its intensity, can be defined in the programming mode, see section 14.6 “Fibre optic light / LED light” on page 48.

13.2 Turbine

Speed/power



Standard pedal: To drive the turbine push the foot control pedal to the right or to the left.

Wide pedal: To drive the turbine push the foot control pedal down.

Pushing the pedal further to the right/left or down will increase the speed or power of the turbine. As you push the pedal the power output will appear on the display. The normal range is 5 - 100%.

To stop the turbine allow the pedal to return to the rest position.

NOTE **The speed/power level depends on the instrument.**

CAUTION ***Ensure that the pedal is in rest position when you activate the turbine.***

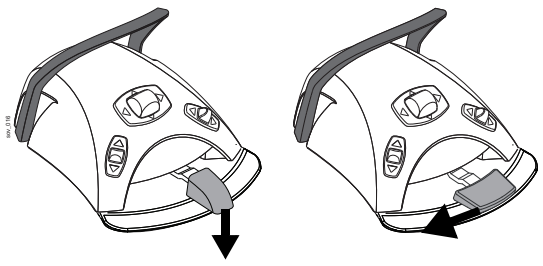
Quickstart

The turbine / air motor will start with maximum speed if the quickstart is enabled. When the instrument is active, but not operated, press *Reverse* to enable/disable the quickstart. When quickstart is enabled, the indicator light is on.

Instrument spray

Press *Instrument spray* to turn the instrument cooling spray on or off. When the indicator light is lit the spray is on and the spray of water, air or both of them are flowing when operating the instrument.

The spray flow rate can be programmed. See section 14.3 “Instrument spray” on page 45.



Alternatively, you can turn the instrument spray on/off with the foot control.

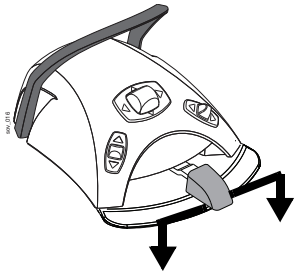
Standard pedal: Push the pedal down briefly to turn the instrument spray on/off.

Wide pedal: Push the pedal briefly to the left to turn the instrument spray on/off.

NOTE **The spray must be switched off when using an instrument without a waterline inside the handpiece.**

NOTE **The instrument spray operated with the foot control can be disabled in the service mode, in which case you can switch the spray on and off only from the control panel. Contact your Planmeca dealer.**

Momentary spray

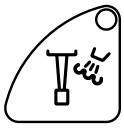


When you are driving the turbine, you can activate the momentary spray by pressing the foot control pedal down. The spray will continue until you remove your foot from the pedal.

NOTE **The momentary spray can be enabled and configured in the service mode, contact your Planmeca dealer.**

NOTE **The momentary spray can not be activated with the wide foot control pedal.**

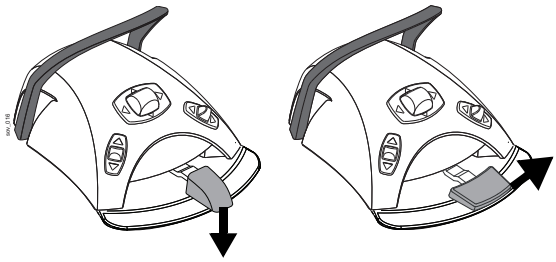
Automatic chip blow



Press *Chip blow* to switch the automatic chip blow on or off. When the indicator light is lit, the automatic chip blow is on and two short blows of water, air, or both will occur after the turbine is stopped.

The type of chip blow can be programmed, see section 14.4 “Chip blow” on page 46.

Manual chip blow



Standard pedal: You can temporarily activate the manual chip blow by pushing and holding down the pedal.

Wide pedal: You can temporarily activate the manual chip blow by pushing and holding the pedal to the right.

The flow of air will continue until you remove your foot from the pedal.

NOTE **The type of manual chip blow does not depend on the type of the automatic chip blow, but is always dry. The manual chip blow can be set to be dependent on programming; contact your Planmeca dealer.**

Fibre optic light

The instrument’s fibre optic light is either on or off when you pick up the instrument from the instrument console.

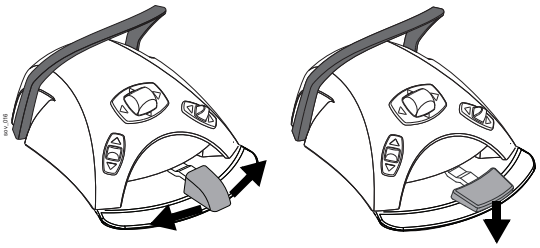
Whether the light is on or off, as well as its intensity, can be defined in the programming mode, see section 14.6 “Fibre optic light / LED light” on page 48.

13.3 Scaler

NOTE **A scaler requires additional electronics and the scaler type can not be changed without changing electronics.**

CAUTION ***Do not use the scaler on patients with cardiac pacemakers. The scaler can cause disturbance on the pacemaker's function.***

Speed/power



Standard pedal: To drive the scaler push the foot control pedal to the right or to the left.

Wide pedal: To drive the scaler push the foot control pedal down.

Pushing the pedal further to the right/left or down will increase the speed or power of the scaler. As you push the pedal the power output will appear on the display.

To stop the scaler allow the pedal to return to the rest position.

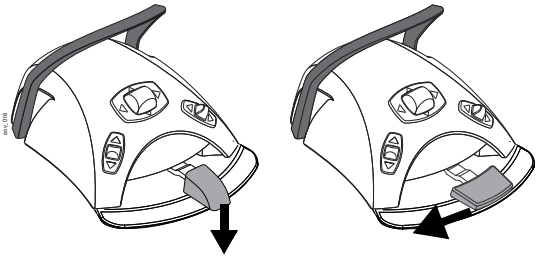
NOTE **The speed/power level depends on the instrument.**

CAUTION ***Ensure that the pedal is in rest position when you activate the scaler.***

Instrument spray

Press *Instrument spray* to turn the instrument spray on or off. When the indicator light is lit the spray is on and the water flows when operating the instrument.

The spray flow rate can be programmed. See section 14.5 "Scaler" on page 47.



Alternatively, you can turn the instrument spray on/off with the foot control.

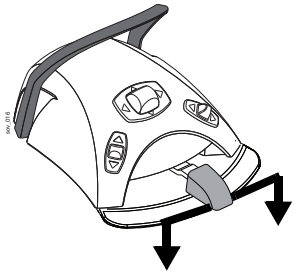
Standard pedal: Push the pedal down briefly to turn the instrument spray on/off.

Wide pedal: Push the pedal briefly to the left to turn the instrument spray on/off.

NOTE **The spray must be switched off when using an instrument without a waterline inside the handpiece.**

NOTE **The instrument spray operated with the foot control can be disabled in the service mode, in which case you can switch the spray on and off only from the control panel. Contact your Planmeca dealer.**

Momentary spray

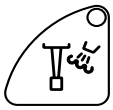


While you are driving the scaler, you can temporarily run a momentary spray, for example, if the spray water flow needs to be increased for a moment. The momentary spray is activated by pressing down the foot control pedal.

NOTE **The momentary spray can be enabled and configured in the service mode, contact your Planmeca dealer.**

NOTE **The momentary spray can not be activated with the wide foot control pedal.**

LM scaler

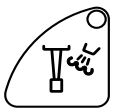


The LM scaler has three working modes: low (0 - 40), medium (0 - 70) and full (0 - 100).

When the scaler is the active instrument, the working mode can be changed by pressing *Chip blow.*

EMS No Pain scaler

The EMS No Pain scaler has three operation modes (the abbreviation in the brackets is displayed on the control panel): endodontics (**Endo**, power range 1 - 50), scaling (**SCAL**, power range 1 - 100) and restoration (**rES**, power range 50 - 100). The power range for all three operation modes is displayed as 1 - 100 (for example, in the restoration mode, power range 50 is displayed as 1).



When the scaler is the active instrument, the working mode can be changed by pressing *Chip blow.*

Fibre optic light

The instrument's fibre optic light is either on or off when you pick up the instrument from the instrument console.

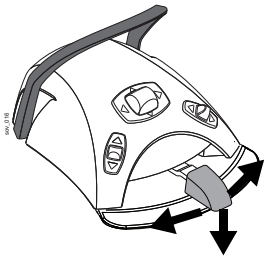
Whether the light is on or off, as well as its intensity, can be defined in the programming mode, see section 14.6 "Fibre optic light / LED light" on page 48.

13.4 Planmeca Lumion polymerisation light

CAUTION ***The polymerisation light generates optical radiation and proper safety measures should be taken when using the instrument. For detailed information, please refer to OEM documentation.***

To start the polymerisation cycle, first select the desired curing mode by pressing the navigation button on the handpiece. Then, start the polymerisation cycle by pressing the start button on the handpiece.

The polymerisation cycle can be interrupted by pressing one of these buttons again.



To start the polymerisation cycle with the foot control, first select the desired curing mode by pressing the navigation button on the handpiece. Then, push the foot control pedal to the right or to the left or down to start the polymerisation cycle.

The polymerisation cycle can be interrupted by pushing the foot control pedal to the right or to the left or down.

The length of the cycle is programmable, see section 14.7 “Planmeca Lumion polymerisation light” on page 49.

When the Planmeca Lumion polymerisation light is activated, the length of the polymerisation cycle is displayed on the control panel. When you start the cycle, you will hear a signal tone. This signal tone is repeated every 10 seconds, and also at 5 seconds. The progress of the polymerisation cycle is shown on the display.

Independent mode

The Planmeca Lumion polymerisation light can also be operated in the independent mode (marked by “d.LEd” on the control panel). The independent mode is typically used when the Planmeca Lumion polymerisation light is attached to the assistant element, but the independent mode can also be configured to be used on the dentist side (the configuration is performed by a Planmeca service technician).

When the Planmeca Lumion polymerisation light is in the independent mode, it can only be controlled by the buttons on the instrument itself, not over the control panel or the foot control.

To start the polymerisation cycle in the independent mode, first select the desired curing mode by pressing the navigation button on the handpiece. Then, briefly press the start button on the handpiece to start a 10-second exposure, or press and hold the start button for 2 seconds to start a 20-second exposure. The polymerisation cycle can be interrupted by pressing the start button.

In the 10-second cycle, a signal tone is heard at the beginning and the end of the cycle. In the 20-second cycle, a signal tone is heard as the cycle starts, after 2 seconds to confirm the start of the 20-second cycle, after 10 seconds and at the end of the cycle.

NOTE **When the Planmeca Lumion polymerisation light is in the independent mode, it can not be controlled over the foot control.**

Refer to the Planmeca Lumion manual of use and maintenance.

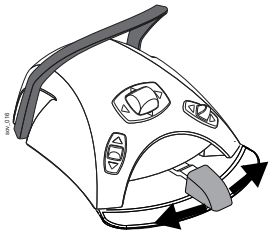
13.5 Intraoral camera

The intraoral camera is placed in the instrument console. Activate the camera by picking it up from the console and bending the balanced instrument arm. The camera is deactivated when you return it to the console.

The intraoral camera is operated with the foot control.

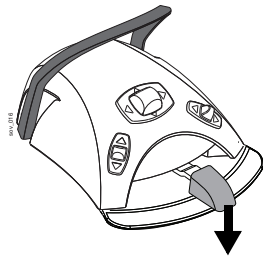
NOTE **To ensure the proper function of the intraoral camera, the dental unit must be switched on before you switch on the Planmeca Romexis application.**

Freezing image



Push the foot control pedal to the left or right to freeze/ unfreeze the image.

Saving image



When the image is frozen, briefly push the foot control pedal down to save the image.

14 PROGRAMMING

14.1 Introduction

Most of the programming follows the same pattern:

1. If you are programming an instrument, pick up the instrument from the instrument console.

NOTE **If the instrument is operated during programming, the changes in settings are seen immediately.**

NOTE **The air/water flow of the syringe can not be changed.**

2. Press *Program* to activate the programming mode. The indicator light is lit.
3. Select the desired function from the control panel.
4. Change the setting of the function with the foot control. To increase the parameter value, push the pedal to the right. To decrease the parameter value, push the pedal to the left. When the pedal is pushed halfway (right or left) the parameter changes slowly. When the pedal is pushed to its extreme position (right or left) the parameter changes quickly. If the pedal is pushed more than 0.4 seconds, the value will change as long as the pedal is pushed.

NOTE **Alternatively, you can change the settings with the up/down buttons. The instrument settings can be adjusted with these buttons without operating the instrument.**

5. Press *Program* to store the new setting into memory.

NOTE **If you interrupt programming for over 90 seconds, the unit automatically exits the programming mode without storing the new settings.**

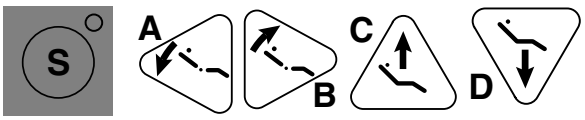
NOTE **To check a function setting without programming it, press *Program* and the desired function button. The setting is shown on the display. Press *Program* again to close the window without changing the setting.**

14.2 Automatic chair positions

1. Move the chair to the required position using the centre knob on the foot control or the chair buttons on the control panel. For more information, see section 11.1 “Manual operation” on page 28.

NOTE **The seat height cannot be programmed near the upper limit. The help code HE 08 will appear on the display if the seat position is not allowed.**
When needed, the upper limit can be altered. Contact your Planmeca dealer.

2. Press *Program*.



3. Press the desired chair position button where to store the chair’s position (rinsing position, A, B, C or D).

4. If you want the operating light to be on (off) in this position, turn it on (off).

PoS.A

5. The chair position appears on the display.

6. Press *Program* to store the chair position into memory.

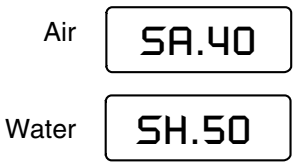
14.3 Instrument spray

This procedure does not apply for the scaler. For information on how to program the scaler, see section 14.5 “Scaler” on page 47.

1. Activate the instrument.

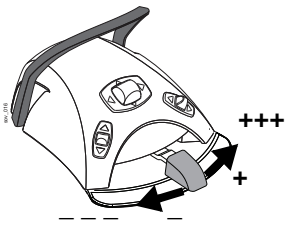
2. Press *Program*.

3. Press *Instrument spray*.



The flow of both air and water can be adjusted. The text ‘SA’ on the display indicates that the spray air is adjusted, and the text ‘SH’ indicates that the spray water is adjusted.

The minimum value of all parameters is 0 (no flow) and maximum 100 (marked as ‘F’). The adjustment step is 1 in the value range 0 - 25% and 5 in the value range 25 - 100%.



4. Adjust the flow rate with the foot control.

5. Change the parameter (air/water) to be adjusted by pressing *Instrument spray* or by pushing the foot control pedal briefly down.

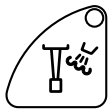
6. Adjust the flow rate with the foot control.

7. Press *Program*.

14.4 Chip blow

1. Activate the instrument.

2. Press *Program*.



3. Press *Chip blow*.

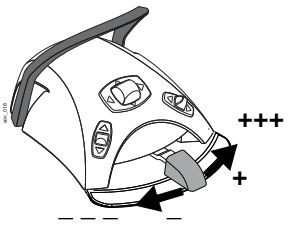
Air

Water

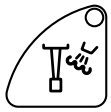
The flow of both air and water can be adjusted. The text ‘CA’ on the display indicates that the chip air is adjusted.

The text ‘CH’ indicates that the chip water is adjusted.

The minimum value of both parameters is 0 (no flow) and the maximum 100 (marked as ‘F’).



4. Adjust the flow rate with the foot control.



5. Change the parameter (air/water) to be adjusted by pressing *Chip blow* or by pushing the foot control pedal briefly down.

6. Adjust the flow rate with the foot control.

7. Press *Program*.

NOTE **The type of manual chip blow does not depend on the type of the automatic chip blow, but is dry as a factory default.**
The manual chip blow can be set to be dependent on programming, contact your Planmeca dealer.

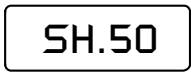
14.5 Scaler

This procedure applies when you are adjusting the water spray for the scaler. For instructions on how to adjust the instrument spray for other instruments, see section 14.3 “Instrument spray” on page 45.

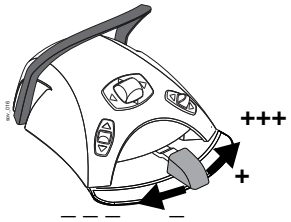
1. Activate the instrument.

1. Press *Program*.

2. Press *Instrument spray*.



The text ‘SH’ on the display indicates that the spray is adjusted. The minimum value is 0 (no flow) and maximum 100 (marked as ‘F’).



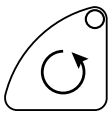
3. Adjust the flow rate with the foot control.

4. Press *Program*.

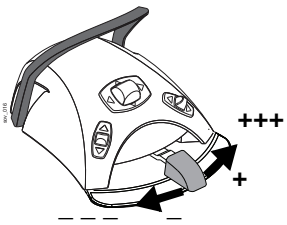
14.6 Fibre optic light / LED light

1. Activate the instrument.

2. Press *Program*.



3. Press *Reverse*.

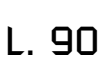


4. Adjust the light intensity with the foot control.

   The minimum value is 70% of the maximum intensity and the maximum 100%, and the adjustment step is 2.

   The light can be programmed to be off: after reaching the minimum value the light is switched off, indicated by ‘L.oFF’ on the display.

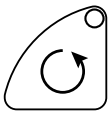
5. Press *Program*.



The light intensity or the text ‘L. oFF’ appears on the display.

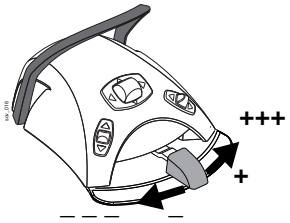
14.7 Planmeca Lumion polymerisation light

1. Press *Program*.



2. Press *Reverse*.

NOTE **Alternatively, you can press *Instrument spray* or *Chip blow*.**



3. Adjust the duration of the polymerisation cycle with the foot control.

   The value range is 5 - 100 seconds. The adjustment step is 5 sec. and the default value is 10 sec.

4. Press *Program*.

LED

The remaining time or the text ‘LED’ appears on the display.

14.8 Duration of bowl rinsing and cup filling

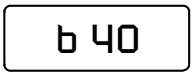
NOTE The cup filling is not activated unless the cup is positioned in its place under the cup fill tube.

NOTE The water in the dental unit is intended for rinsing only, not for drinking.

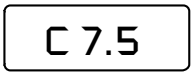
1. Press *Program*.

2. Press *Bowl rinse / cup fill*.

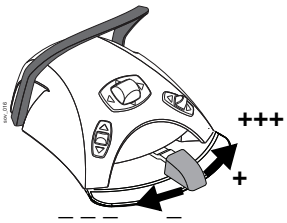
NOTE If you perform the programming from the assistant's control panel, press *Bowl rinse* OR *Cup fill*, depending on what you want to program.

Bowl rinsing 

The letter 'b' on the display indicates that the duration of the bowl rinsing is adjusted. The minimum value is 5 sec. and the maximum 240 sec., and the adjustment step is 5 seconds.

Cup filling 

The letter 'c' on the display indicates that the duration of the cup filling is adjusted. The minimum value is 2 seconds and the maximum is 10 seconds. The duration is adjusted in steps of 0.5 seconds.



3. Adjust the duration with the foot control.

4. Change the parameter to be adjusted by pressing *Bowl rinse / cup fill* and adjust its duration with foot control.

NOTE Skip this step if you are performing the programming from the assistant's control panel.

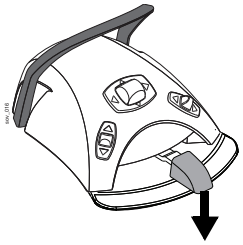
5. Press *Program*.

NOTE

The duration of the cup filling can **also** be programmed as follows:

1. Place an empty cup to the cup holder.
2. Press *Program*.

3. Press *Bowl rinse / cup fill* **twice**. The text ‘c.nn.n’ will appear on the display.

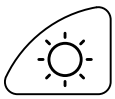


4. Push the foot control pedal down. The cup filling time will first be set to 2 seconds and will start to increase after pushing the foot control pedal for 2 seconds. The pedal can be released and then pushed again, and the time continues to increase. Continue until the cup is filled to the desired level.

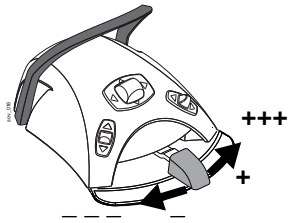
5. Press *Program*.

14.9 Intensity of operating light

1. Press *Program*.



2. Press *Operating light*.



3. Adjust the intensity of the operating light with the foot control.

   The operating light intensity is shown on the display. The minimum value is 70% of the maximum intensity and the maximum 100%, and the adjustment step is 2.

4. Press *Program*.

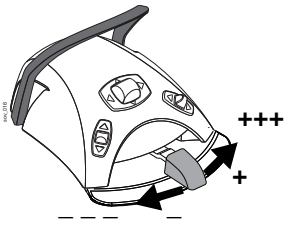
NOTE **The light intensity can also be adjusted as described in section 12.4 “Planmeca SingLED Operating light” on page 34.**

14.10 Duration of door open / assistant call

1. Press *Program*.

2. Press *Door open / assistant call*.

The door open / assistant call time appears on the display. The minimum value is 0 seconds, the maximum 250 seconds. The value is adjusted in steps of 1 in value range 0 - 30, and in steps of 5 in value range 30 - 250. The default value is 5.



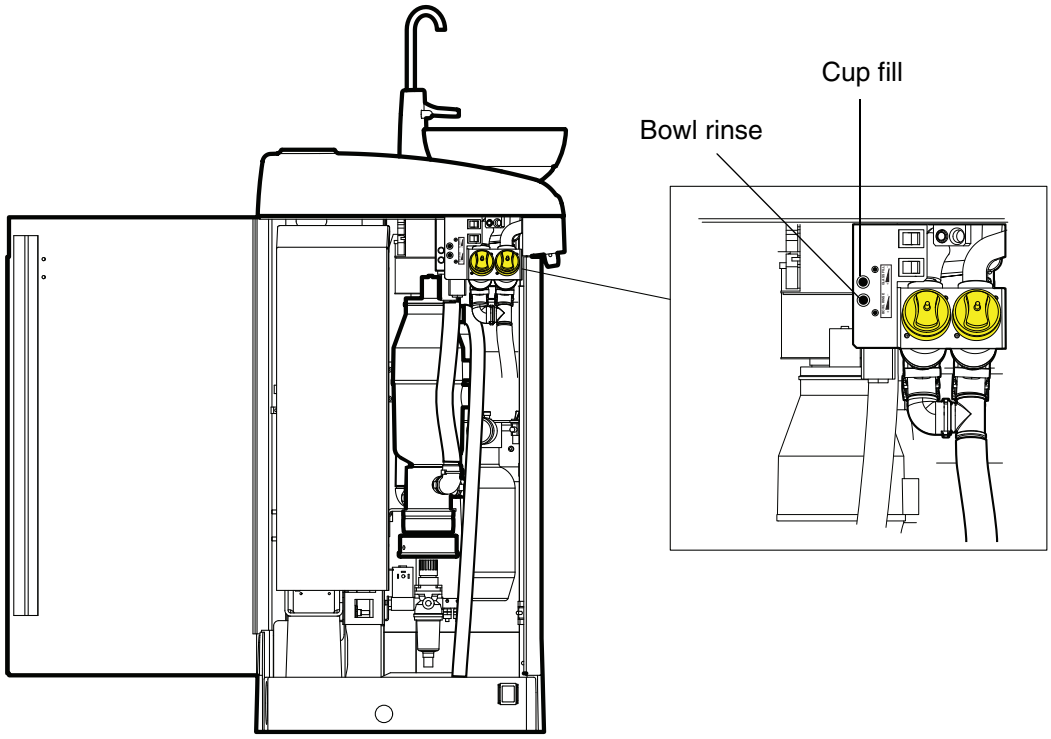
3. Adjust the door open / assistant call time with the foot control.

4. Press *Program*.

15 UNIT ADJUSTMENTS

15.1 Adjusting cup fill and bowl rinse flow rates

The flow rates of the bowl flush and cup fill can be adjusted with the two black knobs located inside the dental unit.



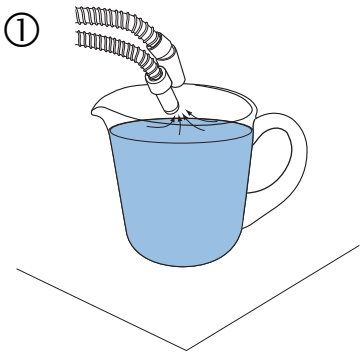
NOTE **Check also the duration of the cup fill when adjusting its flow rate. See section 14.8 “Duration of bowl rinsing and cup filling” on page 50.**

16 CLEANING

NOTE **Before starting the cleaning procedures in the evening, hang the foot control on the hook under the patient chair.**

16.1 Suction system

16.1.1 In the morning



1. Rinse the suction tubes with 1 litre of water by aspirating water and air through the suction handpieces.
2. Wipe the suction handpieces with *Dürr FD 333 / FD 322*.

16.1.2 After each patient

1. Remove the used aspirating tips.
2. For hygienic and operational reasons, empty one glass of water (100 - 200 ml) with each suction tube by aspirating water and air through the suction handpiece. Do this even if only the saliva suction tube has been used.
3. Clean the suction handpieces and wipe them with *Dürr FD 333 / FD 322*, or autoclave them.
4. Wash or disinfect the suction holders with *Dürr FD 333 / FD 322*.

16.1.3 After the working day

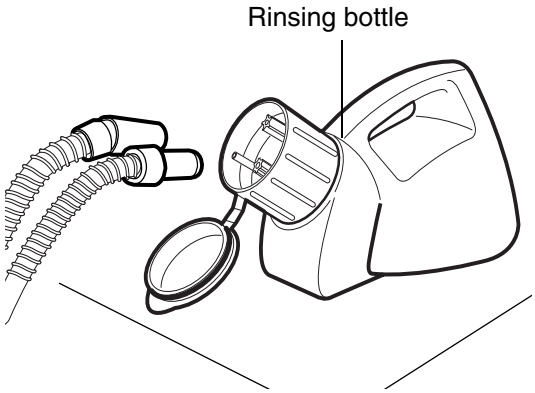
1. Disinfect the suction system by using Orocup.
2. When the suction system has been rinsed, autoclave the suction handpieces.

Orocup

The following describes how to disinfect the suction system with Orocup.

1. Mix the cleaning solution as follows:

   Pour 20 ml Orotol Plus liquid (using the mark on the top) into the rinsing bottle. Add 1 l water and shake well.



NOTE **Do not use dish washing detergents.**

2. Place the rinsing bottle (for example Orocup) on a flat surface (table or floor).
3. Remove the suction handpieces from their holders and push them onto the inserts inside the cap of the rinsing bottle. Allow the bottle to empty.
4. Return the suction tubes back to the holder right after Orocup has been emptied. Do not use suction only for air.
5. Replace the exchangeable parts (filters etc.) the next morning.

16.1.4 Weekly cleaning procedures

1. If your dental unit is equipped with a Dürr amalgam separator or Dürr VSA separator, open the bowl valve by holding your finger on the *Program* button for about 5 seconds until the suction starts. The valve will close automatically after about 15 seconds.
2. Mix 20 ml Orotol Plus liquid with 1 l water and shake well. Pour the solution into the bowl.
3. Let the solution affect overnight. Rinse the suction system the next morning with 2 l of water.

4. Rinse the bowl with water the next morning by pressing *Cup fill / Bowl rinse*.

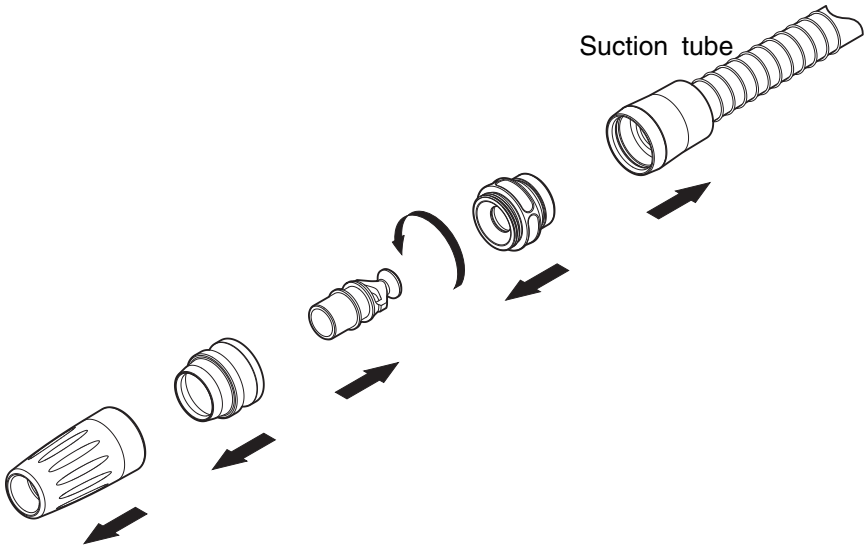
16.1.5 Cleaning suction handpieces

The following explains how the suction handpieces can be disassembled for cleaning.

High power handpiece

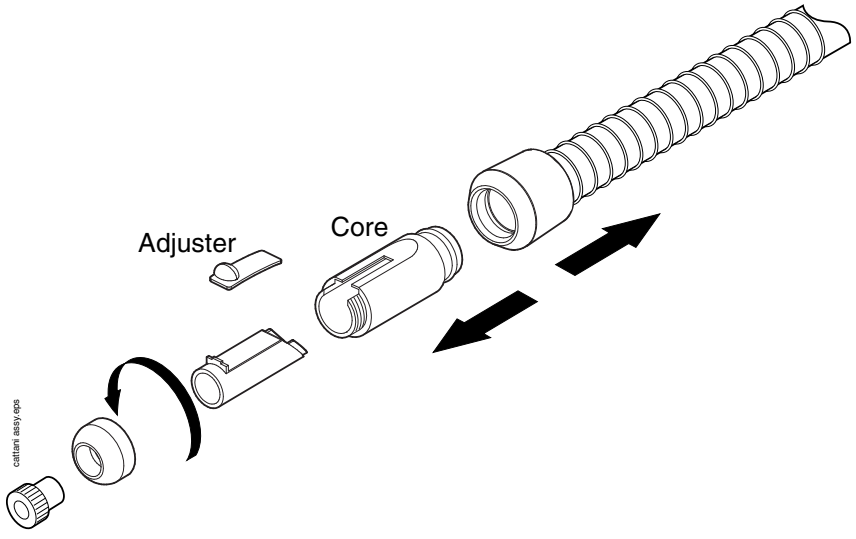
Unscrew the handpiece from the suction tube for cleaning.

If necessary, the handpiece can be completely disassembled for more thorough cleaning. The handpiece parts can be autoclaved up to 135°C.



Saliva handpiece

The saliva handpiece can be disassembled for cleaning by unscrewing the end of the handpiece and removing the core and the adjuster. The handpiece parts can be autoclaved up to 135°C.

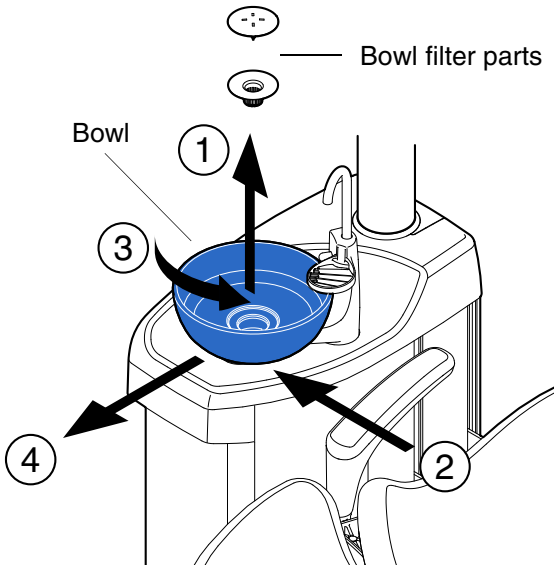


16.2 Bowl cleaning

NOTE **Do not pour anything into the bowl unless the unit is switched on and has air and water (that is, the compressor is switched on and the air and water lines are opened).**

NOTE **Do not pour anything else than water and a special cleaning agent into the bowl. The water must be poured slowly into the bowl. The flow may not exceed 5 l/min.**

NOTE **The bowl can be removed and washed in the dishwasher. The maximum washing temperature is 65°C. At higher temperatures the bowl may break. Avoid rapid temperature changes in the dishwasher and when the bowl is in use.**
When positioning the bowl into the dishwasher, make sure that the bowl does not press other objects in the machine.



Clean the bowl after every patient by pouring a few drops of the cleaning solution into the bowl and using a soft brush. Rinse the bowl by pressing *Cup fill / Bowl rinse*. The outside of the bowl can be wiped clean with a damp cloth.

The bowl can also be removed and washed in the dishwasher if required. Remove the bowl filter parts (1), push the bowl fastening clip carefully down (2) and rotate the bowl counterclockwise and slightly upward (3). You can now remove the bowl by pulling it horizontally away from the cuspidor (4).

Replace the bowl in reverse order.

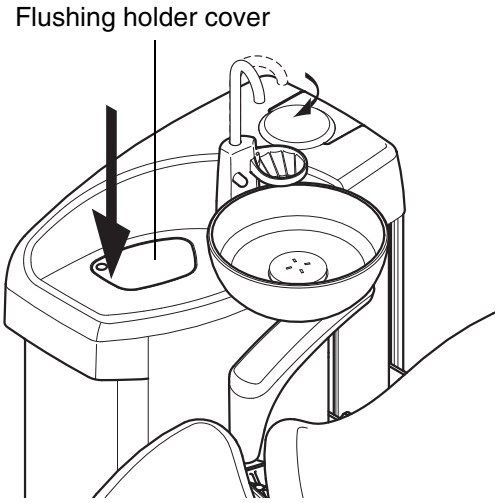
NOTE **The cover cap of the filter makes the removal of the filter easier, but the filter can also be used without the cover cap.**

16.3 Instrument hose flushing

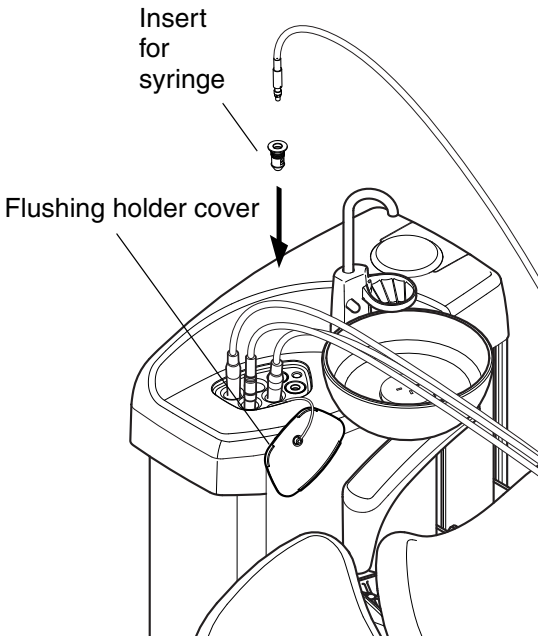
16.3.1 Short instrument hose flushing (during working day)

NOTE **We recommend that short instrument hose flushing be performed after each patient.**

NOTE **The instrument hoses can be flushed independently or at the same time as the suction system is being cleaned.**



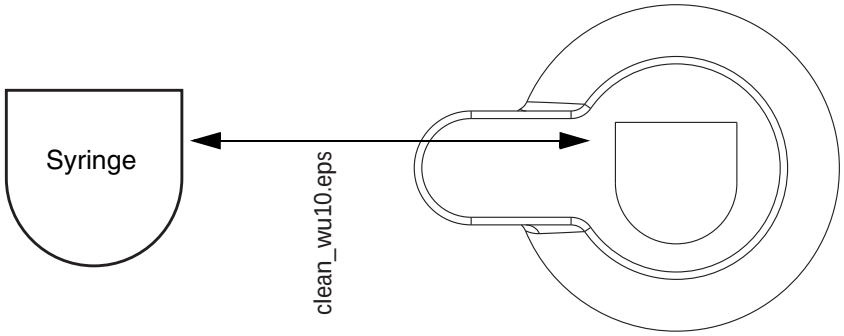
1. Remove the cup from the cup holder. Turn the bowl away from above the flushing holder as shown in the figure. Turn also the cup fill tube above the bowl as shown in the figure. Press the outer edge of the flushing holder cover and remove the cover.

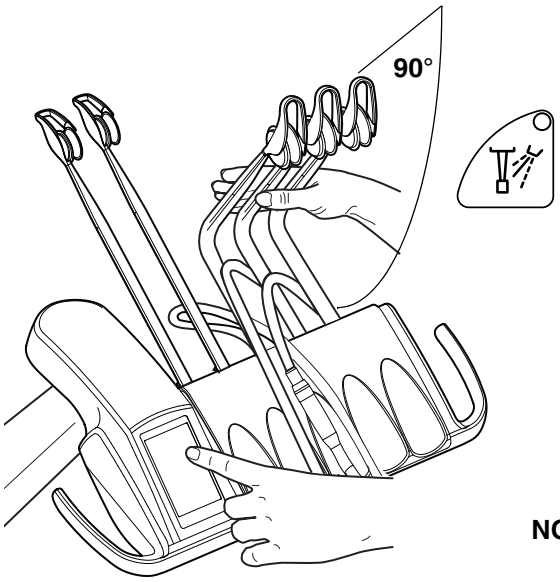


2. Remove the hoses of the instruments to be flushed from the instrument arms / instrument holders and place the instruments into the openings in the flushing holder.

   If you are flushing the smaller round syringe or syringes (max. 2), remove the instrument cover and use the insert as shown in the figure before placing the syringe(s) in the flushing holder. Lock the syringe(s) into place with a rotating movement when the syringe(s) is (are) in the holder.

   The metallic syringe cover must be removed before placing the slightly thicker syringe into the flushing holder. Note the orientation of the syringe. It does not require an insert and must be placed in the holder as instructed below.





3. **Balanced instrument arms:** Start the flushing cycle by bending the instrument arms of those instruments (including syringe) that are to be flushed to an angle of at least 90° and simultaneously pressing *Instrument spray* (you will hear a signal tone) and holding it for 3 seconds. Release the button and arms when you hear a second signal tone.

   Hanging-tube instruments: Start the flushing cycle by pressing *Instrument spray* (you will hear a signal tone) and holding it for 3 seconds. Release the button when you hear a second signal tone.

   The system will first identify the instruments and then each instrument hose is flushed with air and water for 30 seconds in its turn.

NOTE **The flushing cycle can be interrupted by pressing any of the instrument buttons. After the interruption, the dental unit can be used normally.**

4. Once the flushing cycle is finished, remove the instruments and place the holder cover to its position.

   When HE 36 is displayed after the flushing cycle, remove the console syringe from the flushing holder and return it to the instrument holder.

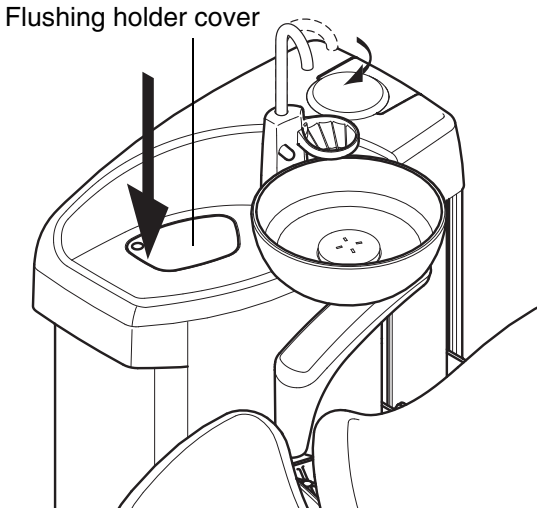
HE 36

Balanced instrument arms: 1. If the balanced arm is bent (and syringe hose is in the balanced arm), remove the syringe from the flushing holder and return it to the instrument holder (balanced arm straightens up and syringe becomes deactivated).
2. If the syringe (has been removed from the flushing holder and) is in the instrument holder, but the hose is removed from the instrument arm, attach the hose to the arm, pick up the syringe and return it to the instrument holder. This ensures that no water will flow from the syringes after flushing.
Hanging-tube instruments: If the syringe is already removed from the flushing holder, return it to the instrument holder.

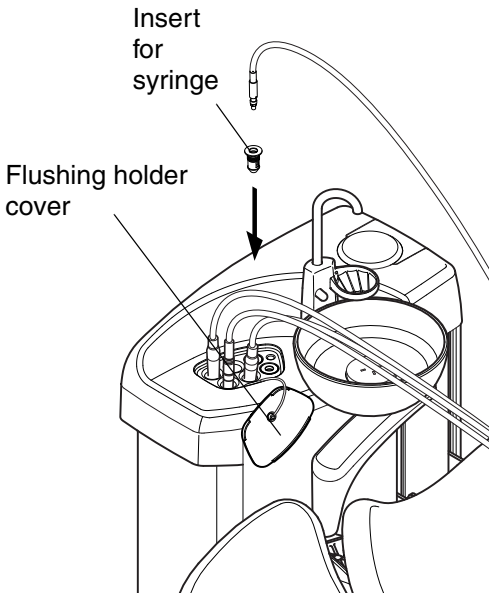
16.3.2 Long flushing (after working day)

NOTE We recommend that long flushing be performed in the morning and after the working day.

NOTE The instrument hoses can be flushed independently or at the same time as the suction system is being cleaned.



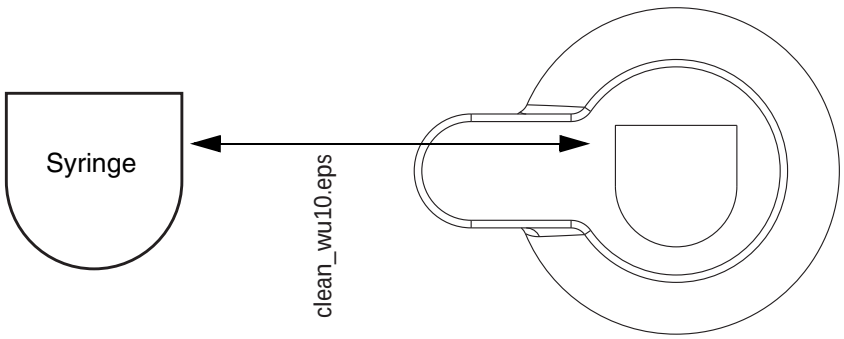
1. Remove the cup from the cup holder. Turn the bowl away from above the flushing holder as shown in the figure. Turn also the cup fill tube above the bowl as shown in the figure. Press the outer edge of the flushing holder cover and remove the cover.

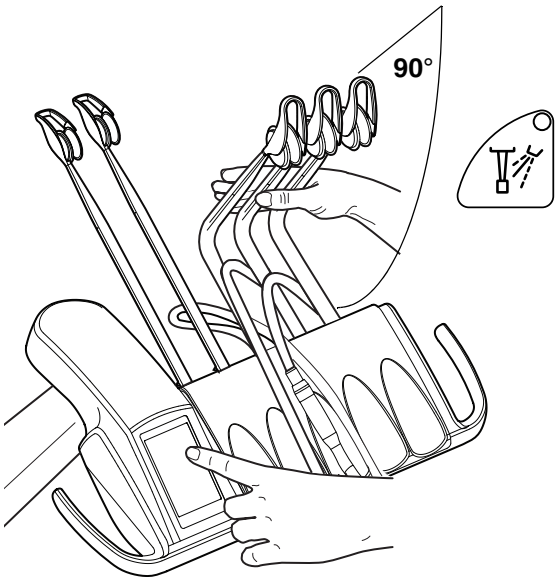


2. Remove the hoses of the instruments to be flushed from the instrument arms / instrument holders and place the instruments into the openings in the flushing holder.

   If you are flushing the smaller round syringe or syringes (max. 2), remove the instrument cover and use the insert as shown in the figure before placing the syringe(s) in the flushing holder. Lock the syringe(s) into place with a rotating movement when the syringe(s) is (are) in the holder.

   The metallic syringe cover must be removed before placing the slightly thicker syringe into the flushing holder. Note the orientation of the syringe. It does not require an insert and must be placed in the holder as instructed below.





3. **Balanced instrument arms:** Start the flushing cycle by bending the instrument arms of those instruments (including syringe) that are to be flushed to an angle of at least 90° and simultaneously pressing *Instrument spray* (you will hear a signal tone) and holding it for 6 seconds. Release the button and instrument arms when you have heard a second and a third signal tone.

   Hanging-tube instruments: Start the flushing cycle by pressing *Instrument spray* (you will hear a signal tone) and holding it for 6 seconds. Release the button when you have heard a second and a third signal tone.

   The system will first identify the instruments and then each instrument hose is flushed with air and water in its turn. The time of flushing is the same for all instruments. The total flushing time is shown on the display. At the same time the cup fill tube and the bowl are flushed, too.

NOTE **Adjust the water flow of the cup fill tube so that the water does not splash into the bowl.**

NOTE **The flushing cycle can be interrupted by pressing any of the instrument buttons. After the interruption, the dental unit can be used normally.**

4. Once the flushing cycle is finished, remove the instruments and place the holder cover to its position.

HE 36

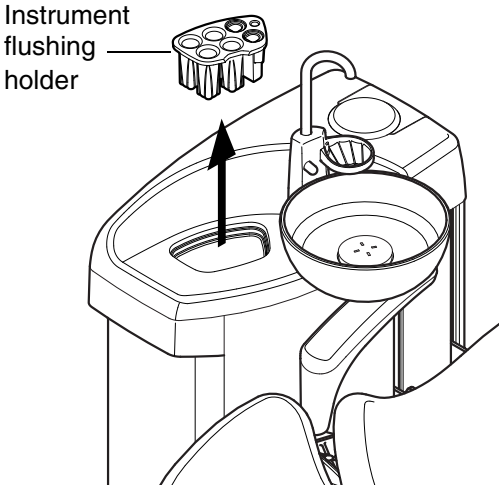
When HE 36 is displayed after the flushing cycle, remove the console syringe from the flushing holder and return it to the instrument holder.
Balanced instrument arms: 1. If the balanced arm is bent (and syringe hose is in the balanced arm), remove the syringe from the flushing holder and return it to the instrument holder (balanced arm straightens up and syringe becomes deactivated).
2. If the syringe (has been removed from the flushing holder and) is in the instrument holder, but the hose is removed from the instrument arm, attach the hose to the arm, pick up the syringe and return it to the instrument holder. This ensures that no water will flow from the syringes after flushing.
Hanging-tube instruments: If the syringe is already removed from the flushing holder, return it to the instrument holder.

NOTE **After the flushing cycle, the unit should immediately be switched off. This procedure ensures that cool water remains in the pipelines of the unit, thus minimising the growth of biofilm.**

NOTE **The duration of the long flushing cycle is configurable. Contact your Planmeca dealer.**

NOTE HELP MESSAGE HE 99
The dental unit can be configured to display help message HE 99 if the unit has been switched off without performing long flushing after water has been used. When HE 99 has been enabled in the service mode it can be displayed as a reminder only, or it can be set to disappear only after you have performed long flushing. To change service mode settings, please contact your Planmeca dealer.

16.4 Instrument flushing holder



The instrument flushing holder can be lifted away from its position. It can be autoclaved up to 135°C.

Note that the flushing holder cover can not be autoclaved. Remove the cover before autoclaving the instrument flushing holder.

16.5 Instrument arms and instrument hoses

The instrument arms can be removed from the console. They can be cleaned with a non-abrasive cleaning agent.

The instrument hoses can be removed for cleaning and for covering with protective sleeves, and they can also be replaced by the user. See section 5.2 “Instrument console” on page 9.

NOTE Make sure that the unit is switched off before opening the quick connectors.

NOTE The instrument hoses can not be autoclaved.

16.6 Instruments

All instruments must be cleaned and serviced according to the information supplied with the instrument.

NOTE After cleaning the instrument let the oil run from it for at least 10 minutes before replacing it on the console.

Intraoral camera

Clean and service the intraoral camera according to the information supplied with the instrument. Throw away the disposable hygiene sleeve after use.

16.7 Patient chair upholstery

A mild soap and warm water solution can be used to wipe off stains and spills. Air dry or dry quickly with the warm setting of a hair dryer.

Clean and treat the upholstery weekly with *Dürr FD 360*.

Disinfecting

We recommend *Dürr FD 312* or a similar product for disinfecting the upholstery.

16.8 Unit surfaces

All exposed surfaces should be periodically wiped clean with a non-abrasive cleaning agent designed for use with dental units.

NOTE **To avoid damage, any splashed cleaning solution must be wiped immediately from the surfaces of the dental unit.**

Disinfecting

Stronger agents can be used for disinfecting the surfaces of the unit. We recommend *Dürr FD 333 / FD 322* or a similar disinfecting solution.

NOTE **Do not use a spray disinfection solution for the suction arms.**

16.9 Foot control

The foot control surfaces should be periodically wiped clean with a non-abrasive cleaning agent designed for use with dental units.

16.10 Monitor

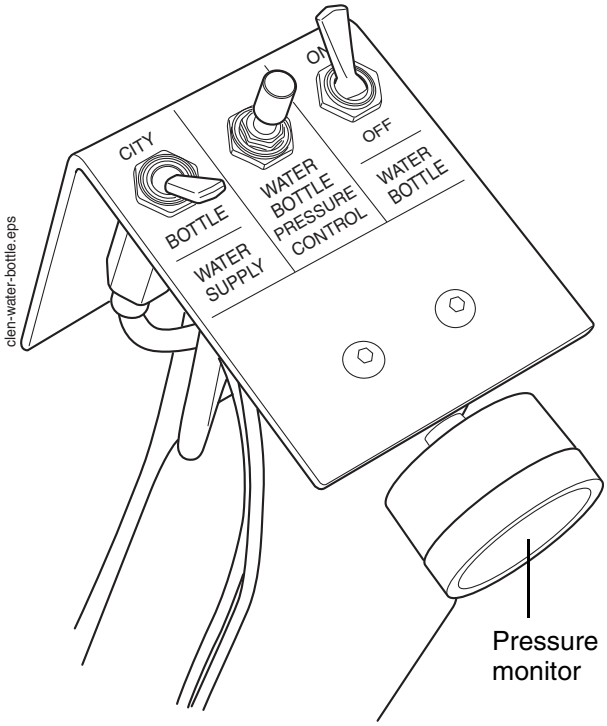
Clean the monitor according to the instructions given by the manufacturer.

17 CLEAN WATER SYSTEM

17.1 Introduction

In the Clean Water System (CWS), the water that is used for the instruments comes from a clean-water bottle installed to the dental unit. CWS can be used, for example, when the domestic water is of poor quality, the waterline system does not generate enough pressure, or if its use is required by legislation.

The switches on the clean-water bottle assembly let you control the water supply.



1. Water supply

   Lets you select the water supply for your dental unit. Turn the switch toward ‘CITY’ to select domestic water, and toward ‘BOTTLE’ to select the clean-water bottle.

2. Water bottle pressure control

   The pressure in the water bottle can be adjusted by turning the knob. The pressure can be checked from the pressure monitor and should be between 2.5 and 2.8 bar.

3. Water bottle

   When the clean-water bottle is used (water supply - switch turned toward ‘BOTTLE’), the water bottle - switch lets you turn the bottle on or off.

   When the switch is toward ‘ON’, the pressure is maintained in the bottle, and the bottle can be used.

When the switch is toward 'OFF', you can detach the bottle, for example, for cleaning. Allow a few seconds for the pressure to drop before unscrewing the bottle.

17.2 Waterline cleaning

CAUTION ***Only Planmeca Planosil cleaning solution must be used. Planmeca does not guarantee the suitability of and is not liable for damages caused by other cleaning solutions.***

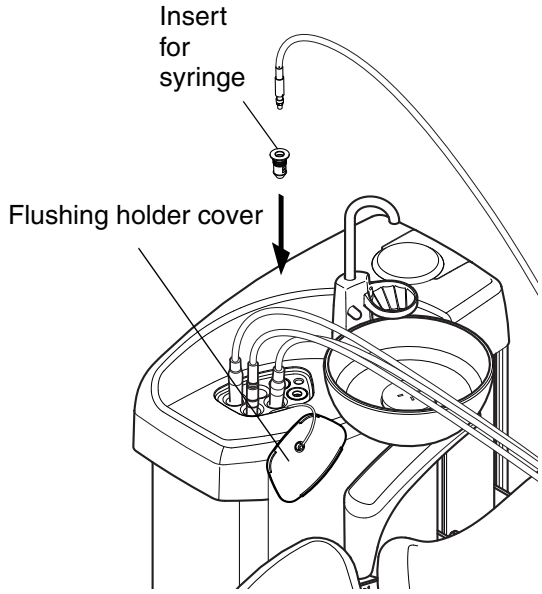
NOTE **To avoid stains, possible cleaning solution splashes should be wiped away immediately.**

17.2.1 After the working day

1. Open the dental unit door.
2. Remove the clean-water bottle.
3. Empty the possible water from the clean-water bottle.
4. Fill the clean-water bottle with approx. 1 dl of cleaning solution. The amount depends on the unit configuration.

   We recommend you keep record of how much solution has been used.
5. Place the clean-water bottle back in its place in the dental unit and close the unit door.

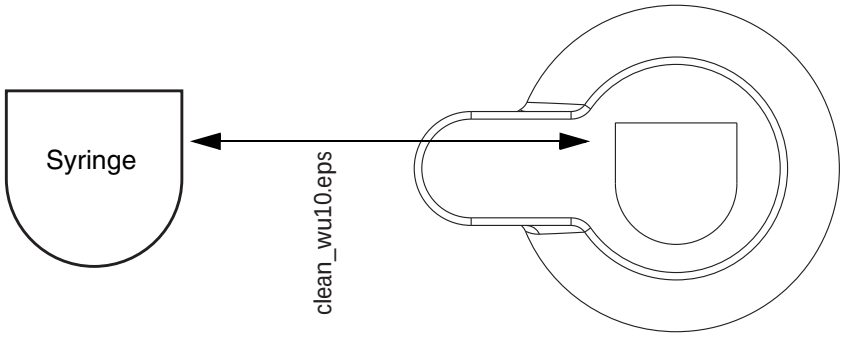
NOTE **Ensure that the water supply switch is turned toward 'BOTTLE' and that the water bottle switch is turned toward 'ON'.**



6. Remove the hoses of all water consuming instruments (including syringe) from the instrument arms / instrument holders and place the instruments and syringes into the openings in the flushing holder.

   If you are flushing the smaller round syringe or syringes (max. 2), remove the instrument cover and use the insert as shown in the figure before placing the syringe(s) in the flushing holder. Lock the syringe(s) into place with a rotating movement when the syringe(s) is (are) in the holder.

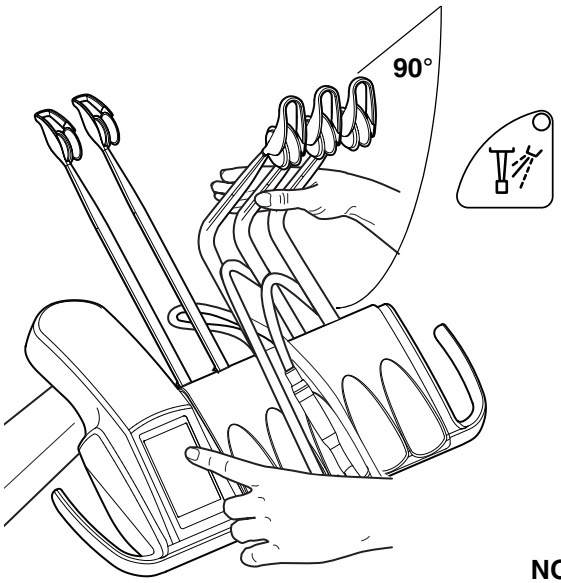
The metallic syringe cover must be removed before placing the slightly thicker syringe into the flushing holder. Note the orientation of the syringe. It does not require an insert and must be placed in the holder as instructed below.



NOTE **When performing the cleaning operation, open the water valves of the instruments.**

NOTE **This procedure does not clean the instrument handpieces. Instrument handpieces are cleaned according to the instrument manufacturer's instructions.**

NOTE **Clean all water consuming instruments, including assistant's syringe.**



7. **Balanced instrument arms:** Start the flushing cycle by bending the instrument arms of those instruments that are to be flushed to an angle of at least 90° and simultaneously pressing *Instrument spray* (you will hear a signal tone) and holding it for 3 seconds. Release the button and arms when you hear a signal tone again.

   Hanging-tube instruments: Start the flushing cycle by pressing *Instrument spray* (you will hear a signal tone) and holding it for 3 seconds. Release the button when you hear a signal tone again.

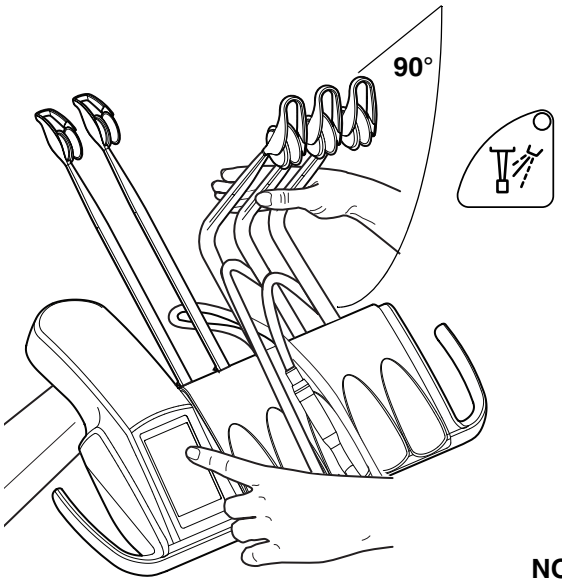
   The system will first identify the instruments and then each instrument hose is flushed with air and water for 30 seconds in its turn.

NOTE **The flushing cycle can be interrupted by pressing any of the instrument buttons. After the interruption, the dental unit can be used normally.**

8. Turn the unit off and let the cleaning solution affect in the unit overnight.

NOTE **Leave the instruments in the flushing holder overnight.**

17.2.2 In the morning



1. Open the dental unit door.
2. Remove the clean-water bottle.
3. Rinse the clean-water bottle and fill it with clean water.
4. Place the clean-water bottle back in its place in the dental unit and close the unit door.
5. **Balanced instrument arms:** Start the flushing cycle by bending the instrument arms of those instruments that are to be flushed to an angle of at least 90° and simultaneously pressing *Instrument spray* (you will hear a signal tone) and holding it for 3 seconds. Release the button and arms when you hear a signal tone again.

   Hanging-tube instruments: Start the flushing cycle by pressing *Instrument spray* (you will hear a signal tone) and holding it for 3 seconds. Release the button when you hear a signal tone again.

   The system will first identify the instruments and then each instrument hose is flushed with air and water for 30 seconds in its turn.

NOTE **The flushing cycle can be interrupted by pressing any of the instrument buttons. After the interruption, the dental unit can be used normally.**

6. Repeat the flushing sequence in step 5 at least three times, or until the water is clean. If the clean-water bottle runs out of water, refill it. You can also use the domestic water mode when performing the flushing.
7. **Balanced instrument arms:** Place the instrument hoses back in the instrument arms, and the instruments back in the instrument console.

   Hanging-tube instruments: Place the instruments back in the instrument holders.

   The dental unit is now ready for use.

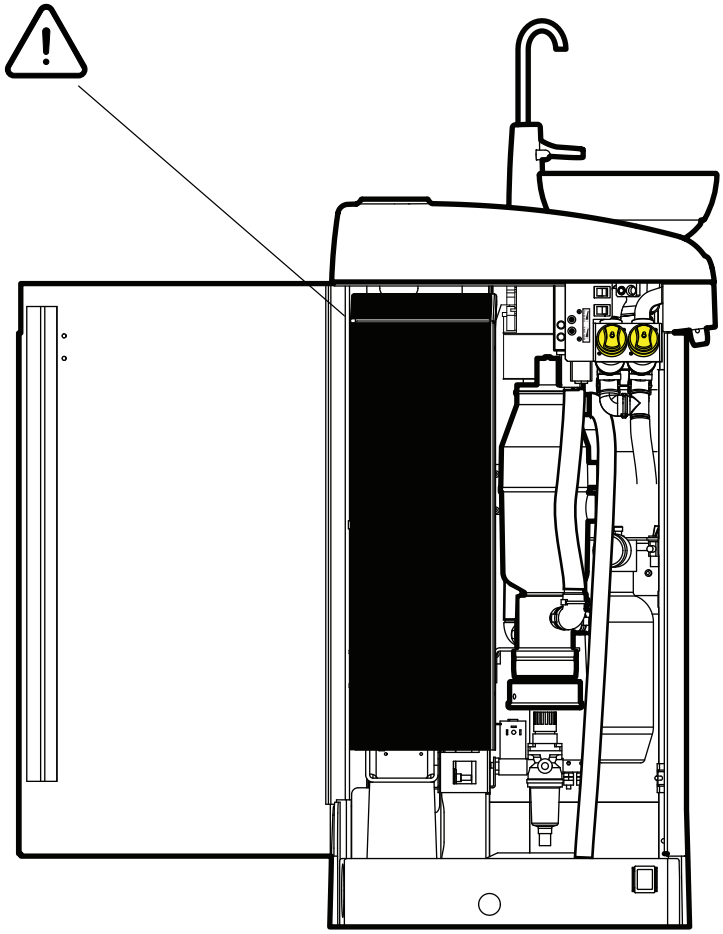
18 MAINTENANCE

CAUTION When servicing the unit, always switch the unit off.

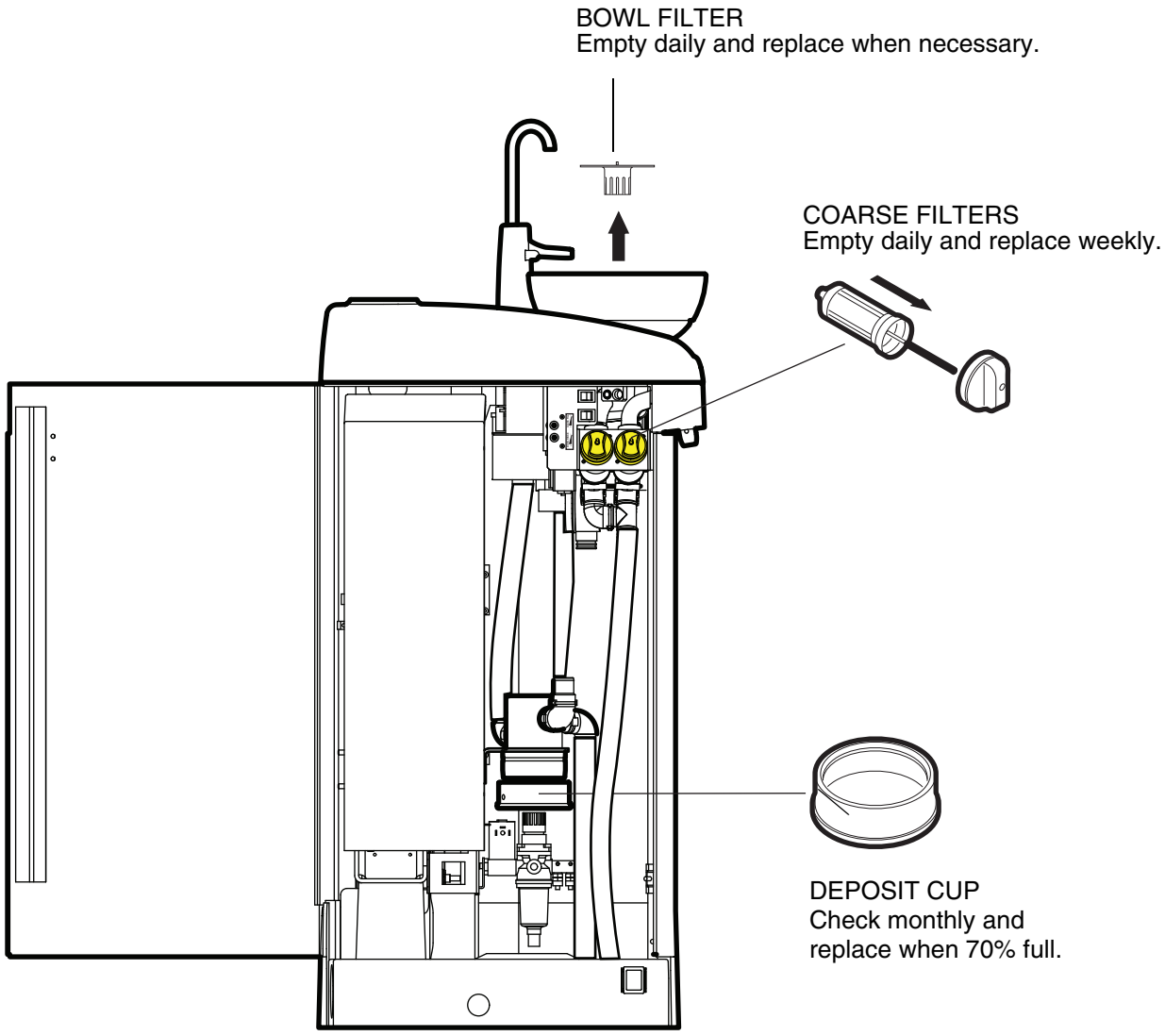
CAUTION Note that in extreme conditions the temperature of the chair lift and backrest motors might rise significantly. DO NOT TOUCH THE MOTORS!

CAUTION Note that the mains voltage is always present at the mains terminal under the Main control PCB cover, even if the unit is switched off from its own mains switch.

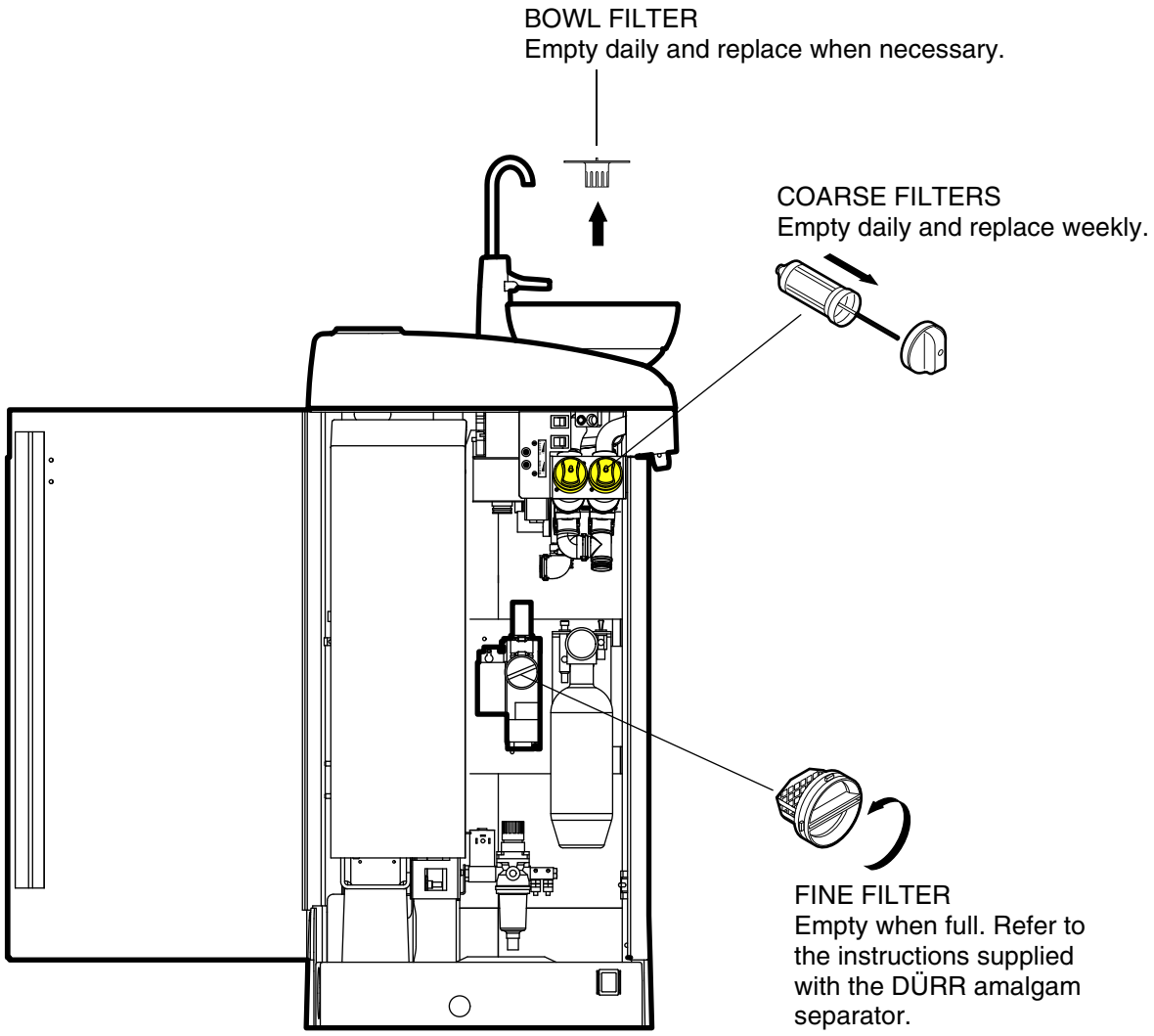
The power supply must be disconnected externally from, for example, a fuse or a mains switch. The fuse or main switch must be lockable into off-position.



18.1 Units with wet suction system



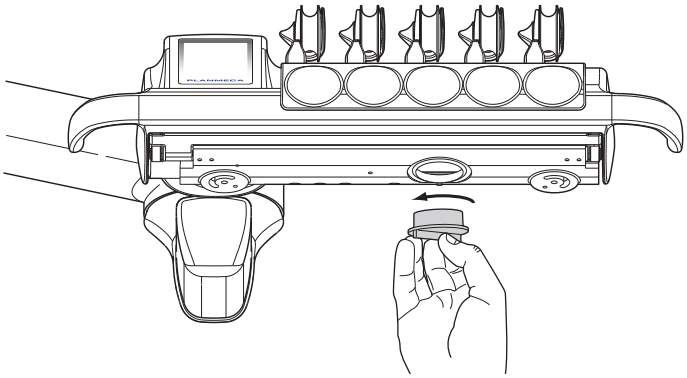
18.2 Units with Dürr VS/A separator / suction system


BOWL FILTER
Empty daily and replace when necessary.
COARSE FILTERS
Empty daily and replace weekly.
FINE FILTER
Empty when full. Refer to the instructions supplied with the DÜRR amalgam separator.

18.3 Oil cup

18.3.1 Instrument console with balanced instrument arms

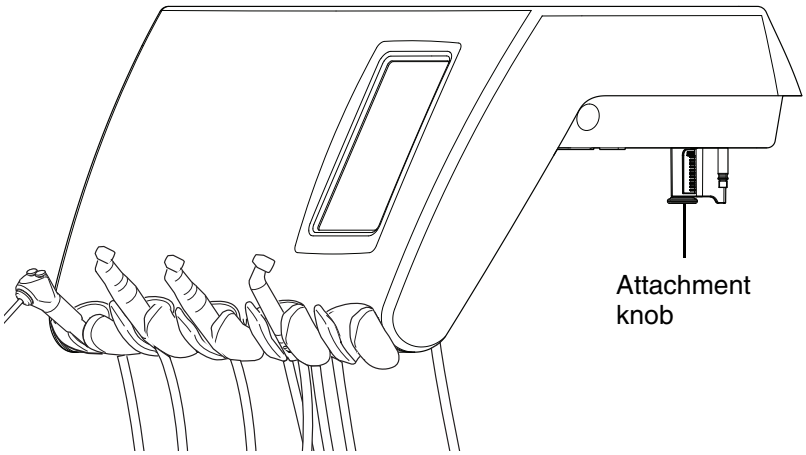
The oil collector underneath the instrument console has to be emptied and cleaned monthly. Remove the oil cup by turning it counterclockwise as shown in the picture below.



18.3.2 Instrument console with hanging-tube instruments

The oil collector underneath the instrument console has to be checked weekly and emptied when full.

You can check how full the oil collector is without removing it completely. Pull the oil collector downward from the attachment knob (1) and check the oil level in the narrower chamber (2). If it has started to fill, it is time to empty the oil collector.



To remove the oil collector from the instrument console, unscrew the oil collector attachment knob and carefully pull the collector out.

19 HELP & ERROR MESSAGES

19.1 Help messages

Help messages provide helpful information for the user. They are displayed, for example, if you are using the unit or instrument incorrectly, or if the function is not allowed for some reason.

The following table lists the help messages.

NOTE **In case the unit is not equipped with the Waterline Cleaning System, the WCS related help messages can be disabled. Contact your Planmeca dealer.**

HELP CODE	MEANING	ACTION OR EXPLANATION
HE1	Amalgam container is 95% full.	Replace or empty the container as soon as possible, or at least before the next patient. Pressing the program key allows to continue the operation until the container is 100% (totally) full.
HE2	Amalgam container is 100% full.	Replace or empty the container immediately. The suction system cannot be used before the container is emptied or replaced.
HE3	Patient chair cannot be driven down because safety switch is activated.	Check that the space under the seat is free and nothing is touching the plate at the bottom. The chair can be driven normally after the possible obstruction has been removed.
HE4	This left-hand instrument position allows only syringe.	The leftmost position in the console is reserved for the syringe only. Replace this instrument with a syringe. Place the other instrument to one of the four right-hand places.
HE5	This instrument position does not accept syringe.	Remove the syringe from this position and replace it with any other kind of instrument. The syringe must be placed in the leftmost place.
HE6	Patient chair cannot be driven when instrument is in use.	Stop the instrument (release the foot control pedal) to be able to run the chair.
HE7	Patient chair up/down movement is not allowed when cuspidor door is open.	Close the cuspidor door to be able to run the chair up/down or to a pre-programmed position.
HE8	Seat height can not be programmed this high in automatic positions for patient safety reasons.	Run the chair slightly down to be able to program this position into memory.
HE9	This scaler cannot currently be used with this unit.	This scaler needs a dedicated electronics that is not installed, or the scaler electronics installed is not compatible with this scaler.
HE10	Wait while configuring the dental instrument setup.	Wait a few seconds for the unit to check your instrument configuration, since it has changed.
HE11	Software download mode is on.	

HELP CODE	MEANING	ACTION OR EXPLANATION
HE12	Unit's internal error reporting is disabled.	The unit operates normally but no errors are reported (exhibition use). Use service mode n.15 to turn error reporting back on. See service mode n.15 in Technical manual, chapter "Service mode" for details.
HE13	Instrument cannot run because of patient security violation.	Return the foot control pedal once to the middle position to start the instrument. Instruments do not start if the standard foot control pedal is already pushed to the right or left when the instrument is picked up from the instrument console.
HE14	This dental instrument is not recognised (new type of instrument).	To be able to operate this new instrument the MCB software must be updated. See Technical manual, section "Upgrading software" in chapter "Parts replacement & repair" for details.
HE15	This key has no function at the moment.	Instruments: Pick up a dental instrument before attempting to alter its settings; or if the instrument is selected, this function is not allowed with this instrument. Other keys: the unit does not have this function.
HE16	Operating light is dimmed and curing light can be used.	This feature enables easier work with composite materials, minimising the risk of operating light induced curing. This feature is triggered by picking up and returning the polymerisation light to its holder without starting it. The operating light returns to normal at the same instance any control is touched or another instrument selected. The feature can be disabled, see service mode n.73 in Technical manual, chapter "Service mode" for details.
HE17	No syringe connected to instrument console.	The console syringe must be re-connected, otherwise there is an air-leak from the syringe QC whenever an instrument or device that requires air pressure is used.
HE18	No instrument hose connected to this instrument place.	The instrument is picked up, but there is no hose connected at this location. Check that all hoses go to the right instrument arms.
HE19	No syringe connected to connector located on cuspidor.	The assistant's syringe must be re-connected, otherwise there is an air-leak from the assistant's syringe QC whenever an instrument or device that requires air pressure is used. Install the syringe or disable the syringe using service mode n.84. For details on the service mode, see Technical manual, chapter "Service mode".
HE20	Connector located on cuspidor allows only syringe, other instruments cannot be connected to this connector.	The assistant's syringe QC cannot control the currently connected instrument.
HE21	Flow of both spray air and spray water are programmed to zero (no flow).	Enter the spray programming mode to set a flow other than zero. For details, see Technical manual, section "Instrument spray flow rates" in chapter "Touch panel functions".

HELP CODE	MEANING	ACTION OR EXPLANATION
HE22	Main air/water valve operation is not set to automatic (A) in SM 12 (air)/13 (water). Reboot unit. HE22 again: Contact service.	This is just a reminder that either of the main valves is temporarily set to always be either on or off, although they should be set to automatic (n = A).
HE23	Automatic/manual chip blow cannot be used when sterile water function is selected.	
HE24	Programming of selected setting is disabled.	The programming of the selected setting is disabled. Disable the protection using service mode n.0. For more information, see Technical manual, chapter "Service mode".
HE25	Planmeca Compact e help message: Patient chair cannot be driven into automatic chair position.	Swivel the patient chair with automatic legrest before driving the chair to the automatic position. Check that the chair type in service mode n.103 is correct. (See service mode n 103 in Technical manual, chapter "Service mode".)
HE26	Drive seat upwards, then lower backrest. If patient chair is attached to unit, chair's automatic positions are not switched on.	Drive the seat upwards before lowering the backrest. If this help message is shown while the patient chair is attached to the unit, it means that you have forgotten to switch on the chair’s automatic positions. To clear the message, put the operation mode switch on the cuspidor side of the chair base in the “AUTO” position (switch up).
HE27	Drive backrest upwards, then lower seat. If patient chair is attached to unit, chair's automatic positions are not switched on.	Drive the backrest upwards before lowering the seat. If this help message is shown while the patient chair is attached to the unit, it means that you have forgotten to switch on the chair’s automatic positions. To clear the message, put the operation mode switch on the cuspidor side of the chair base in the “AUTO” position (switch up).
HE28	Planmeca Compact WE's help message.	Connect the lifter cable.
HE29	Drive seat downwards, then lower backrest. If patient chair is attached to unit, chair's automatic positions are not switched on.	Drive the seat downwards before lowering the backrest. If this help message is shown while the patient chair is attached to the unit, it means that you have forgotten to switch on the chair’s automatic positions. To clear the message, put the operation mode switch on the cuspidor side of the chair base in the “AUTO” position (switch up).
HE30	Unit is waiting for container to be attached.	Attach the container (or perform long flushing or use service mode n.101).
HE31	Switch unit off, leave Planosil in unit for min. 8 h. Switch unit on. Remove container, fill it with water and attach to unit.	Turn off the unit if needed. When the unit is turned back on, remove the container, fill it with water and attach it again to the unit (or perform long flushing or use service mode n.101).
HE32	Pre-rinsing cycle is completed and container should be removed.	Remove the container (or perform long flushing or use service mode n.101).
HE33	Unit is waiting for main water to be turned on.	Open the tap (or perform long flushing or use service mode n.101).

HELP CODE	MEANING	ACTION OR EXPLANATION
HE34	No instr. selected when starting instr. flushing or waterline cleaning.	Select (remove from holder, bend the balanced instrument arm) at least one instrument and syringe.
HE35	Instruments are locked for safety reasons. Remove container, open tap, and press Instr. spray key to perform instrument flushing.	Perform long instrument flushing.
HE36	After flushing: Return instruments to instrument console.	
HE37	Waterline Cleaning System cycle has been interrupted.	
HE38	Waterline cleaning system help message: Low water pressure during final rinsing.	
HE39	Syringe misplaced or flow not detected in WCS.	The help message will disappear after bending the syringe instrument arm and placing the syringe again in the flushing holder.
HE40	Too many Bien-Air MX Brushless Micromotors.	A maximum of two is allowed.
HE41	Insert suction tubes to STCS holder, add disinfectant and press green start button (upper button).	
HE42	STCS program completed. Return suction tubes to unit suction arm and close STCS box cover.	
HE43	STCS program cancelled.	
HE44	Incorrect suction tube amount detected. Return them to unit suction arm, place them back to STCS holders and start cleaning.	
HE45	Set WMS to Domestic Water Supply -mode and wait until WMS bottle is full. Then start STCS cleaning.	STCS can not be used when WMS is set to Bottled Water -mode.
HE46	Suction use is forbidden or there are no suction tubes in dental unit configuration.	The value of service mode n.83 is 0.
HE47	STCS Orotol pressure is low. (In automatised STCS: Fill Orotol container).	
HE48	WMS must be set to Bottled water off and Bottle on -modes before starting STCS cleaning sequence.	Bottled water off = domestic water is used Bottle on = bottle is used; domestic water is run through the bottle.
HE50	No cup in cup holder. Sensor does not recognise cup when pressing cup fill key.	Place a cup on the cup holder. Or change the setting of service mode n 115.
HE51	Bowl is above patient chair when driving chair up.	If the unit has a bowl, move the bowl to the rest position. If the unit has an OP delivery arm safety switch, check that the OP delivery arm is not blocking the chair movement.
HE52	Patient chair can not be driven upward because safety switch of side delivery arm is released.	

HELP CODE	MEANING	ACTION OR EXPLANATION
HE53	Patient chair can not be driven downward because safety switch of side delivery arm is released.	
HE54	Cup is inserted in cup holder.	Remove the cup and make sure the cup fill tube is above the bowl.
HE60	WMS: Container almost empty in Domestic water supply -mode.	Reduce water use for a moment.
HE61	WMS: Container almost empty in Bottled water -mode.	Reduce water use and fill the container as soon as possible.
HE62	WMS: Container switch is turned off.	Switch on the container switch.
HE63	Cuspidor door is open.	Close the door.
HE64	Fill container with disinfectant over upper sensor.	
HE65	Fill container with water over upper sensor.	
HE66	Wait 8 hours or switch unit off for the night.	
HE70	Brushless micromotor is stuck or broken.	
HE80	Headrest length safety feature activated when driving headrest. Check that nothing is blocking headrest movements.	Check that nothing is blocking the headrest movement. The headrest can be driven normally after the possible obstruction has been removed.
HE81	Headrest angle safety feature activated when driving headrest. Check that nothing is blocking headrest movements.	Check that nothing is blocking the headrest movement. The headrest can be driven normally after the possible obstruction has been removed.
HE83	Foot control emergency switch is active.	
HE85	SW update denied. Chair was moving or instrument was in use while starting SW update.	The chair was moving or an instrument was in use while starting the software update.
HE86	SW update denied. Incorrect control panel type was detected while starting SW update.	An incorrect control panel type was detected while starting the software update.
HE90	This key has no function at the moment, press Pos Sel, Chair/Headr/Light Sel first.	
HE91	Stop (Help) button pressed.	
HE92	Help (Stop) button pressed.	
HE93	This key has no function at the moment because there is no motorised light.	
HE95	Patient chair automatic position cannot be reached because legrest is unlocked or armrests are blocking movement.	
HE99	Unit has been switched off without performing long flushing after water has been used. Perform long flushing.	This help message can be disabled, see Technical manual, service mode n.99 for details.
HE200	Detected new software update. Confirm to install?	
HE201	Detected new software update SD-card. Confirm to install 5.3.0.9.R ?	

HELP CODE	MEANING	ACTION OR EXPLANATION
HE210	Software update. Installing to Control panel bootloader sw. DO NOT TURN POWER OFF.	Do not turn the power off while the software is being updated.
HE212	Software update. Installing to Control panel application sw. DO NOT TURN POWER OFF.	Do not turn the power off while the software is being updated.
HE214	Software update. Installing to Control panel application sw. DO NOT TURN POWER OFF.	Do not turn the power off while the software is being updated.
HE216	Software update. Downloading from server. DO NOT TURN POWER OFF.	Do not turn the power off while downloading software from the server.
HE218	Software update. Installing to Main PCB. DO NOT TURN POWER OFF.	Do not turn the power off while the software is being updated.
END	Flushing completed. Remove syringe from flushing holder and return it to console. If syringe is removed, return it to flushing holder.	
DOOR	Cuspidor door is open.	Close the door.
FC.LD	Move foot control pedal to leftmost position. Press pedal down and hold. While holding, push centre knob briefly in 'chair up' direction.	Move the foot control pedal to the leftmost position. Press the pedal down and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.LU	Move foot control pedal to leftmost position and hold. While holding, push centre knob briefly in 'chair up' direction.	Move the foot control pedal to the leftmost position and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.CD	Press foot control pedal down and hold. While holding, push centre knob briefly in 'chair up' direction.	Press the foot control pedal down and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.CU	Keep foot control pedal in rest position (centre). Push centre knob briefly in 'chair up' direction.	Keep the foot control pedal in the rest position (centre). Push the centre knob briefly in the ‘chair up’ direction.
FC.RD	Move foot control pedal to rightmost position. Press pedal down and hold. While holding, push centre knob briefly in 'chair up' direction.	Move the foot control pedal to the rightmost position. Press the pedal down and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.RU	Move foot control pedal to rightmost position and hold. While holding, push centre knob briefly in 'chair up' direction.	Move the foot control pedal to the rightmost position and hold. While holding, push the centre knob briefly in the ‘chair up’ direction.
FC.--	To exit foot control calibration mode, press and hold down calibration switch for 4 seconds.	

19.2 Error messages

The following table lists the error messages, which are mainly intended to assist the technician.

Table 1: General error messages

ERROR CODE	EXPLANATION
E1.01	Main water valve short circuit.
E1.02	Main air valve short circuit.
E1.03	Bowl rinse valve short circuit.
E1.04	Cup filling valve short circuit.
E1.05	Water flush valve short circuit.
E1.06	Separator pulse valve short circuit.
E1.07	Ejector valve short circuit.
E1.08	Extra out 1 short circuit.
E1.09	Extra out 2 short circuit.
E1.10	Extra out 3 short circuit.
E1.11	Separator start signal / Microvac's start valve short circuit.
E1.12	Assistant syringe water valve short circuit.
E1.13	Separator alarm reset signal short circuit.
E1.14	PLANET output (ELMP) short circuit.
E1.15	Not used or not in the manuals.
E2.01	Incoming water valve open circuit.
E2.02	Incoming air valve open circuit.
E2.03	Bowl rinse valve open circuit.
E2.04	Cup filling valve open circuit.
E2.05	Main Control PCB output open circuit warning.
E2.06	Separator pulse valve open circuit.
E2.07	Main Control PCB output open circuit warning.
E2.08	Main Control PCB output open circuit warning.
E2.09	Main Control PCB output open circuit warning.
E2.10	Main Control PCB output open circuit warning.
E2.11	Separator start signal open circuit / Microvac valve open circuit.
E2.12	Assistant syringe water valve open circuit.
E2.13	Separator alarm reset signal open circuit.
E2.14	Main Control PCB output open circuit warning.
E2.15	Not used or not in the manuals.
E3.1	Incoming air pressure comp. to water pres. is too low.
E3.2	General pressure problem.
E3.3	General pressure problem.
E3.4	Internal air pressure (after pres. regulator) is too low.

Table 1: General error messages

ERROR CODE	EXPLANATION
E3.5	Internal air pressure (after pres. regulator) is too high.
E4.1	Short circuit in cable from MCB to control panel / suction holder in branch 1.
E4.2	Short circuit in cable from MCB to control panel / suction holder in branch 2.
E5	Unsupported device attached.
E6.01	Cuspidor up -safety circuit error.
E6.02	Cuspidor down -safety circuit error.
E6.03	Chair down -safety circuit error.
E6.04	Bowl up -safety circuit error.
E6.05	Bowl down -safety circuit error.
E6.07	Console up -safety circuit error.
E6.08	Console down -safety circuit error.

Table 2: Power supply related error messages

ERROR CODE	EXPLANATION
E7	IPS voltage failure on MCB.
E8	Power supply related error messages.
E9	Internal operating voltage too low.
E10	Internal operating voltage too high.
E11.1	OP-light fuse (F5) and/or Water heater fuse (F7) has blown on the MCB.
E11.2	Separator fuse (F6) and/or Syringe heater fuse (F8) has blown on the MCB.
E11.3	Either of the +24V electronics fuses (F9 or F10) has blown on the MCB.
E11.4	Rectifier D5 or D6 short circuit or either of the +24V electronics fuses (F3 or F4) has blown on the MCB. Chair, instrument and headrest control not allowed.
E11.5	Separator fuse (F5) has blown on the MCB. Chair, instrument and headrest control not allowed.
E11.6	Water heater fuse (F6) has blown on the MCB. Chair, instrument and headrest control not allowed.
E11.7	Syringe heater fuse (F7) has blown on the MCB. Chair, instrument and head-rest control not allowed.
E11.8	Curing light fuse (F8) has blown on the MCB. Chair, instrument and headrest control not allowed.
E12.1	SELV voltage too low (below 30V). Chair, instrument and headrest control not allowed.
E12.2	SELV voltage too high (above 39V)
E13	Mains frequency outside acceptable range.
E14	IPS temperature measurement sensor error.
E15	IPS heatsink is running too hot on MCB.
E16	Attached scaler electronics is of new type.

Table 2: Power supply related error messages

ERROR CODE	EXPLANATION
E16.1	New type of scaler electronics is attached to MCB.
E16.2	New type of scaler electronics is attached to IMUX.
E16.3	Scaler electronics slot does not match with scaler hose connection.
E16.4	Other instrument than scaler is connected to slot where scaler electronics is.
E17	Power Supply related error messages.
E18	Power Supply related error messages.

Table 3: Control panel related error messages

ERROR CODE	EXPLANATION
E19.1	Control panel in branch 1 is of new type.
E19.2	Control panel in branch 2 is of new type.
E20.1	Control panel 1 key stuck.
E20.2	Control panel 2 key stuck.
E21	Control panel related error messages.
E22	Control panel related error messages.

Table 4: Instrument related error messages

ERROR CODE	EXPLANATION
E23	Polymerisation light bulb has blown or is not properly attached to socket.
E24	Control panel related error messages.
E25	Satelec mini LED polymerisation light requires newer IMUX PCB version.
E26	Instrument related error messages.
E27	Instrument related error messages.

Table 5: Instrument multiplexer related error messages

ERROR CODE	EXPLANATION
E28.1	Reference resistor signal out of bounds when unit is switched on.
E28.2	Active instrument signal out of bounds.
E28.3	Syringe signal out of bounds.
E28.4	Reference resistor signal out of bounds when instrument is activated.
E28.5	Syringe signal changes during use (blinking).
E29	Voltage error in fibre light power supply in IMUX.
E30	Instrument multiplexer related error messages.
E31	Instrument multiplexer related error messages.
E32.1	IMUX is not responding. IMUX cable disconnected or failure in cable or IMUX.

Table 5: Instrument multiplexer related error messages

ERROR CODE	EXPLANATION
E32.2	IMUX software is not compatible (IMUX is of new type) with MCB software.
E32.3	IMUX data error (cable short circuit).
E32.4	IMUX communication error.
E32.5	Wrong IMUX type or wrong unit type.
E33.1	Syringe select valve short circuit.
E33.2	Instrument 1 select valve short circuit.
E33.3	Instrument 2 select valve short circuit.
E33.4	Instrument 3 select valve short circuit.
E33.5	Instrument 4 select valve short circuit.
E33.6	Instrument multiplexer related error messages.
E33.7	Drive/Cooling air valve short circuit.
E33.8	Air coolant valve short circuit.
E33.9	Water coolant valve short circuit.
E34	Not used or not in the manuals.
E34.1	Syringe select valve open circuit.
E34.2	Instrument 1 select valve open circuit.
E34.3	Instrument 2 select valve open circuit.
E34.4	Instrument 3 select valve open circuit.
E34.5	Instrument 4 select valve open circuit.
E34.6	Instrument multiplexer related error messages.
E34.7	Drive/Cooling air valve open circuit.
E34.8	Air coolant valve circuit.
E34.9	Water coolant valve circuit.
E35.1	Drive/Cooling air pressure sensor output <0.2 V.
E35.2	Air coolant pressure sensor output <0.2 V.
E35.3	Water coolant pressure sensor output <0.2 V.
E35.4	Differential pressure sensor output <0.2 V.
E36.1	Drive/Cooling air pressure sensor output >5 V.
E36.2	Air coolant pressure sensor output >5 V.
E36.3	Water coolant pressure sensor output >5 V.
E36.4	Differential pressure sensor output >5 V.
E37	Pressure sensor cable not properly attached to IMUX.
E38	Instrument multiplexer related error messages.
E39	Drive (cooling) air valve control servo cannot maintain pressure to instrument.
E40	Instrument multiplexer related error messages.
E41	Instrument multiplexer related error messages.
E42	Air coolant (spray air) control servo cannot maintain required pressure.
E43	Instrument multiplexer related error messages.

Table 5: Instrument multiplexer related error messages

ERROR CODE	EXPLANATION
E44	Instrument multiplexer related error messages.
E45	Water coolant (spray water) control servo cannot maintain required pressure.
E46	Instrument multiplexer related error messages.

Table 6: Suction tube holder related error messages

ERROR CODE	EXPLANATION
E47	Suction tube holder is of new type.
E47.1	Suction holder in branch 1 is of new type.
E47.2	Suction holder in branch 2 is of new type.
E48.1	No suction holders detected.
E48.2	Suction tube holder (STH) related error messages.
E48.3	Suction tube holder (STH) related error messages.
E48.4	Suction tube holder (STH) related error messages.
E49.1	Suction holder PCB or its cable is faulty in branch 1.
E49.2	Suction holder PCB or its cable is faulty in branch 2.
E50	Unidentified STCS jumper configuration.
E50.1	WMS must be set to Bottle water off -mode when starting STCS cleaning sequence.

Table 7: Foot control related error messages

ERROR CODE	EXPLANATION
E51.1	Foot control related error messages.
E51.2	Foot control is not responding.
E51.3	Foot control pedal was pressed down when dental unit was switched on.
E51.4	Foot control pedal was not in home pos. when dental unit was switched on.
E51.5	Foot ctrl chair ctrl knob was not in home pos. when dent. unit was switched on.
E51.6	Foot control left knob is either stuck or active at power-up or after pedal use.
E51.7	Foot control right knob is either stuck or active at power-up or after pedal use.
E52	Foot control is of new type, update MCB software.
E52.1	Incompatible wireless foot control receiver software
E52.2	Incompatible wireless foot control software
E52.3	Incompatible foot control software
E53	Foot control data error (cable short circuit).
E54.0	Foot control error.
E54.1	Foot control EEPROM write failure.
E54.2	Foot control EEPROM read failure.

Table 7: Foot control related error messages

ERROR CODE	EXPLANATION
E54.3	Pedal too far from sensors, channel A.
E54.4	Pedal too far from sensors, channel B.
E54.5	Sensor plate is tilted too much to either side, checksum error.
E54.6	Sensor plate is too close to PCB, channel A.
E54.7	Sensor plate is too close to PCB, channel B.
E54.8	Foot control re-trigger error.
E54.9	Foot control calibration error.
E55	Foot control related error messages.

Table 8: Operating light related error messages

ERROR CODE	EXPLANATION
E56	Operating light erroneously connected or short circuit in push button.
E57	Incompatible Singled software
E58	Operating light bulb burned out.

Table 9: Separator system related error messages

ERROR CODE	EXPLANATION
E59.1	Separator reports functional error.
E59.2	Separator reports functional error.
E60	Separator is not responding or separator cable is faulty.
E61	Separator is flooded with too much water.
E62	Newly attached separator is of new type and cannot be controlled by MCB.
E63.1	WMS seems to be installed, although it should not be (according to service mode).
E63.2	No WMS is installed, although it should be according to service mode.

Table 10: Patient chair related error messages

ERROR CODE	EXPLANATION
E64	Seat pos. potentiometer or its cable is faulty or disconnected.
E65	Lift motor does not run or no signal from position potentiometer.
E65.1	Lift motor does not run. EmeStop relay PCB/cables or position sensor/cable may be faulty.
E66	Lift motor or its position potentiometer cable has a wrong connection.
E67	Backrest position potentiometer or its cable is faulty or disconnected.
E68	Backrest motor does not run or no signal from position potentiometer.

Table 10: Patient chair related error messages

ERROR CODE	EXPLANATION
E68.1	Backrest motor does not run. EmeStop relay PCB/ cables or position sensor/ cable may be faulty.
E69	Backrest motor or its position potentiometer cable has a wrong connection.
E70	
E70.1	Lift motor error.
E70.2	Backrest motor error.
E71	Patient chair -related.

Table 11: MAIN CPU related error messages

ERROR CODE	EXPLANATION
E72.1	Program (Flash-EPROM) error. Main software is corrupted. Replace Flash-EPROM.
E72.2	Program (Flash-EPROM) error. Boot software is corrupted. Replace Flash-EPROM.
E72.3	Program (Flash-EPROM) error.
E72.4	Data transfer error while updating main PCB SW from control panel memory device.
E73.1	EEPROM error, CPU EEPROM erase/program failure, replace CPU.
E73.2	CPU configuration register contents are wrong, replace CPU.
E73.3	CPU EEPROM checksum error.
E73.4	CPU EEPROM checksum programmed. Replace CPU if error occurs often.
E74.1	RAM error, External RAM test failure, replace RAM.
E74.2	CPU RAM test failure, replace CPU.
E75.1	CPU error, WD reset.
E75.2	Illegal OP-code.
E75.3	Illegal vector.
E75.6	Mains voltage failure.
E75.7	Clock monitor reset.
E76	MAIN CPU related error messages.
E77	Error in communicating with external device reserved for future use.
E79	IMUX water pressure cannot be released during WCS cycle.

Table 12: Headrest related error messages

ERROR CODE	EXPLANATION
E80.1	Motorised headrest is not found (according to service mode configuration).
E80.2	Motorised headrest is found, but is not set in service mode configuration.
E80.3	Headrest joystick (dentist side) stuck or cable broken.

Table 12: Headrest related error messages

ERROR CODE	EXPLANATION
E80.4	Headrest joystick (assistant side) stuck or cable broken.
E81	Motorised headrest communication error (may be too old or wrong software or loose cables or short circuit).
E81.1	Motorised headrest communication error.
E82	Headrest SW is incompatible with MCB SW.
E82.1	Headrest SW is incompatible with MCB SW.
E82.2	Incompatible headrest software.
E90	Water leak detected.

Table 13: Software upgrade error messages

ERROR CODE	EXPLANATION
E99	Software upgrade failure.
E99.1	MCB software upgrade failure.
E99.2	IMUX software upgrade failure.
E99.3	Control panel software upgrade failure.
E99.4	Operating light software upgrade failure.
E99.5	Motorised headrest software upgrade failure.
E99.6	Foot control software upgrade failure.
E99.7	Wireless foot control software upgrade failure.
E99.8	Wireless foot control receiver software upgrade failure.

Table 14: Error messages generated by control panel

ERROR CODE	EXPLANATION
EP19.3	Control panel version mismatch.
EP19.5	Control panel software upgrade has failed or memory card is faulty.
EP21.1	Control panel display is faulty.
EP21.2	Control panel data error.
EP21.5	Unable to read Main PCB software version.
EP21.6	Control panel software not installed or software error.
EP21.7	Touch panel is not working.

Refer to the Planmeca Compact i Classic Technical manual for detailed information on the errors.

20 UNIT DISPOSAL

In order to reduce the environmental load over the product's entire lifecycle, Planmeca products are designed to be as safe as possible to manufacture, use and dispose of.

Parts which can be recycled should always be taken to the appropriate processing centres, after hazardous waste has been removed. Disposal of obsolete units is the responsibility of the waste possessor.

All parts and components containing hazardous materials must be disposed of in accordance with waste legislation and instructions issued by the environmental authorities. The risks involved and the necessary precautions must be taken into account when handling waste products.

Part	Main materials for disposal	Recyclable material	Waste disposal site	Hazardous waste (separate collection)
Frame and covers - metal - plastic - rubber - glass - porcelain	 Aluminium, galvanised steel PVC, PUR, other plastics	 X X X X	 X X X	 X
Motor		(X)		
Component boards		(X)		
Cables, transformers	Copper, steel	X X		
Amalgam separator(* - filters - collectors				 X X
Packing	Wood, cardboard, paper	X X X		
Other parts			X	

*) Refer to the instructions supplied by the manufacturer.

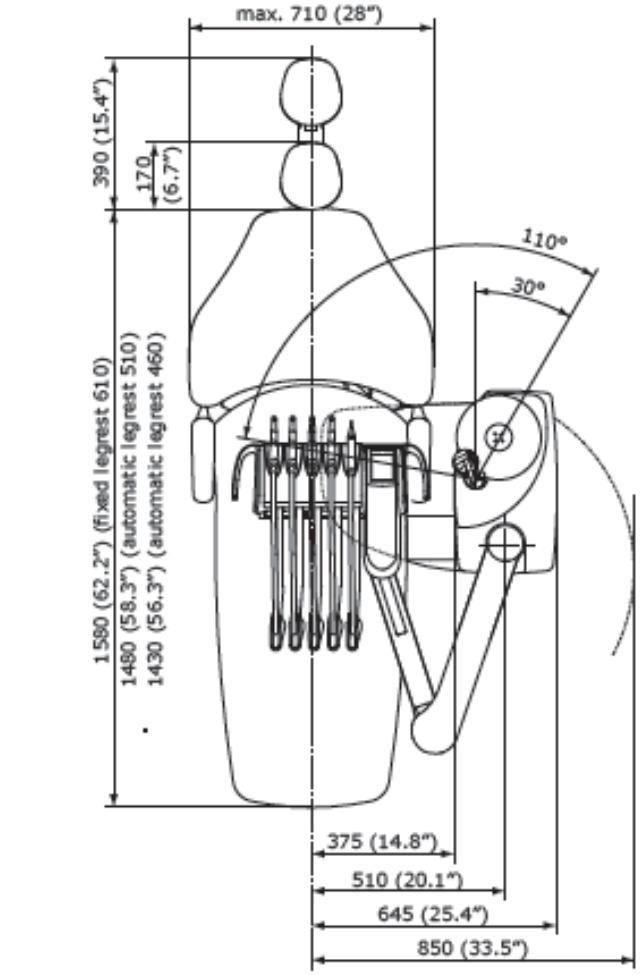
21 TECHNICAL SPECIFICATIONS

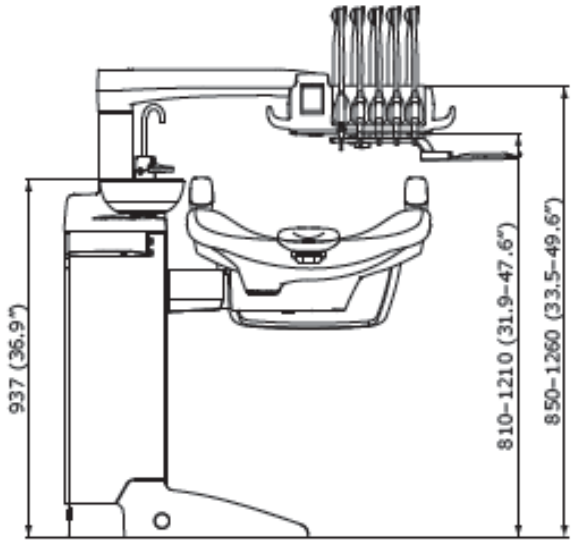
POWER CONSUMPTION	max. 1200 VA
MAINS VOLTAGE	100 VAC 115 VAC 220-240 VAC
MAINS FREQUENCY	50/60 Hz
INCOMING AIR PRESSURE	550 kPa to 900 kPa (80 psi to 130 psi)
INCOMING WATER PRESSURE	300 - 900 kPa
INCOMING WATER HARDNESS	≤ 8°dH (1°dH = 20mg Ca/3l water)
WEIGHT	130 kg
AMBIENT TEMPERATURE	Operating +15°C to +35°C (+59°F to +95°F) Storage -5°C to +60°C (+23°F to +140°F)
RELATIVE HUMIDITY	5% RH to 95% RH; absence of condensation
ALTITUDE	< 2000 m (less than 1.25 miles)
ELECTRICAL CLASSIFICATION	Class I, type B and BF
CHAIR LIFT- AND BACKREST MOTOR OPERATION	Intermittent operation, ED 8%, 25 sec "ON", 300 sec. "OFF"

CAUTION ***If the unit has been stored at temperatures below +10°C for more than a few hours, time must be allowed for the unit to reach room temperature in the original packing before connecting the unit to the mains voltage.***

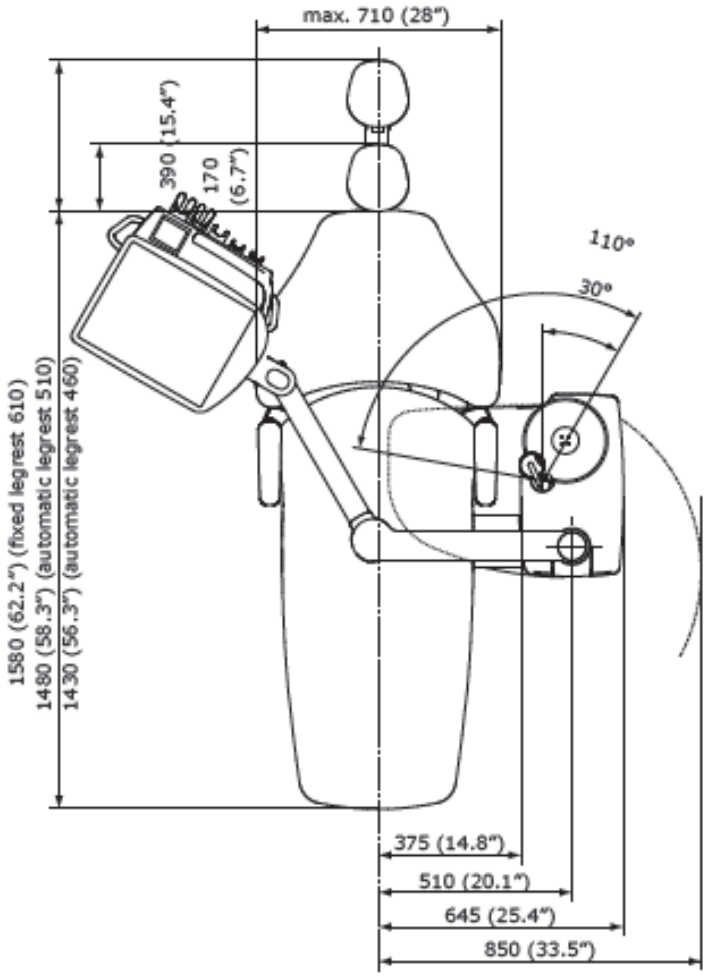
21.1 Dimensions

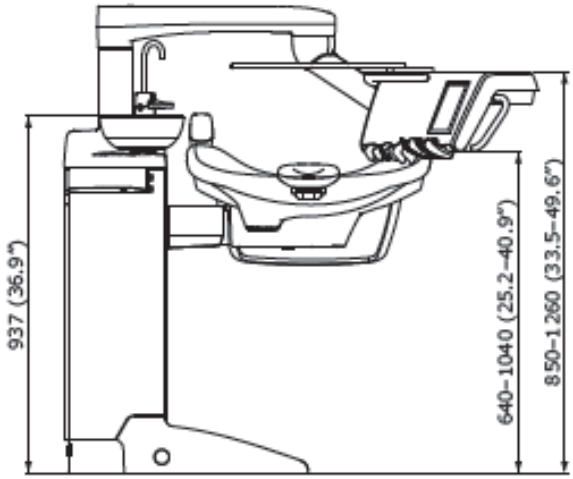
Over-the-patient delivery with balanced instrument arms





Over-the-patient delivery with hanging-tube instruments





21.2 Planmeca Compact i Classic dental unit's water consumption

Part	Water consumption
Bowl	The flow rate is approx. 2.5 liters (0.66 gallons) per minute. The flow rate can be configured.
Cup filler	The cup filling is adjusted for the size of cup you use.
Syringe	The flow rate is approx. 0.1 liters (0.03 gallons) per minute.
Handpieces	The flow rate is approx. 0.05 liters (0.01 gallons) per minute.
Suction system	A small amount of water, approx. 0.2 liters (0.05 gallons), is used to help keep the suction system clean when in use.
Suction system cleaning cycle	Cleaning is done once a day and uses 2.5 liters (0.66 gallons) of water.

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PLANMECA Oy's Quality System
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